Factors Influencing Intention to Obtain HPV Vaccine in Young College Women in Songkhla Province

Sukmadewi

A Thesis Submitted in Fulfillment of the Requirements for the Degree of Master of Pharmacy in Clinical Pharmacy
Prince of Songkla University
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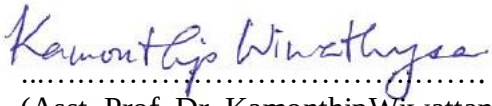
This is to certify that the work here submitted is the result of the candidate's own investigations. Due acknowledgement has been made of any assistance received.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ABSTRACT

Low uptake of HPV vaccine has been presented among college women in Thailand. Currently the uptake among college women has fallen behind the uptake of the school girl population. Intention is often disclosed as a precursor of uptake. In order to develop an intervention to increase the uptake in the Thai catch-up population, a study to understand the significant predictors for intention is needed. This study aimed to examine the level of intention to obtain HPV vaccine and determined the factors influencing the intention to obtain HPV vaccine in young Thai college women.

This cross-sectional research included college women aged 18 to 26 years from non-health-related areas of study. Using the purposive sampling technique, three hundred and seventy eight questionnaire sets were distributed in ten faculties of Songkhla Rajabhat University and Prince of Songkla University, Hat Yai Campus. Cognitive validation through the think-aloud technique was completed. The content validity index was judged by three experts yielding a CVI of 1 for all the questionnaire constructs. The Cronbach's alpha coefficient of attitude to obtain HPV vaccination was 0.930, subjective norm to obtain HPV vaccination was 0.866, perceived behavioral control to obtain HPV vaccination was 0.894, perceived susceptibility of not obtaining HPV vaccine was 0.921, perceived of vaccine effectiveness was 0.912 and cost of HPV vaccination was 0.877. Additionally, the Kuder Richardson 20 (KR-20), coefficient of knowledge of HPV and cervical cancer was 0.714. The intention was categorized into three levels using class interval and the factors influencing intention was determined using multiple regression analysis.

One hundred and ninety one college women qualified for the analysis. Overall, the level of intention to obtain HPV vaccination was high. The percentage of female college women with moderate and high intention to obtain the vaccine of HPV was similar, 44% and 45%, respectively. Attitude to obtain HPV vaccine, perceived behavioral control and perceived susceptibility of not obtaining HPV vaccine were the factors that influenced intention to obtain HPV vaccine and explained 40.1% variance of intention to obtain HPV vaccine. The educational material for increasing intention should emphasize the attitude to obtain HPV vaccination, perceived behavioral control and perceived susceptibility of not obtaining HPV vaccine. However, the factors associated with the realization of intention toward uptake of HPV vaccination require further study.

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CHAPTER 1

INTRODUCTION

Background and Significance of the Study

In a female population, cervical cancer is the fourth utmost frequent cancer with.[1] For the record, 570,000 women were suffering from cervical cancer in 2018.[1] Furthermore, cervical cancer was the cause of 311,000 women' deaths with more than 90% of the deaths were found in low and middle income countries in 2018.[1,2] Thailand as one of middle income countries also battling with cervical cancer cases which was ranked as the fourth most prevalent inducer of women' death caused by cancer in 2018.[3] In the same year, cervical cancer estimated rank as the second leading cause of cancer death in women aged 15 to 44 in Thailand.[3]

Cervical cancer development is highly influenced by human papillomavirus (HPV) infection.[4] A proof that the HPV infection is an essential and determinant factor of cervical cancer is the high prevalence of the HPV infections, which appear in 99.7% people who suffer from cervical cancer, worldwide.[5] The infections of genotypes 16 (83.2%) and 18 (59.3%) are the most common in Thailand.[6] Generally, identified risks of HPV infection are an experience of sexual intercourse during the early age of life, more sexual partners, smoking, infrequent condom use, oral contraceptive use and history of herpes simplex virus.[7]

In a middle income country with successful cervical cancer screening program, HPV vaccine should be added.[8] In this case, the consideration depends on several factors, such as distribution mechanism, communications, marketing and cost effectiveness.[8] Thailand was proofed to have a successful cervical cancer screening program, i.e. PAP smear and Visual Inspection with Acetic Acid (VIA) with the numbers of screened women were 90.01% out of 9,577,840 targeted population in 2014.[9]

An evaluation of the cost and effectiveness of the HPV vaccination in Thailand mentioned that the HPV vaccine is one of the most cost effective approaches for cervical cancer prevention in women age 12.[10] The finding is similar with the result of cost-effectiveness analysis in Thailand conducted by Sharma et al[11] which reported that HPV vaccine is cost saving and projected to reduce the lifetime risk of cervical cancer by 55%. Although vaccination does not eliminate the necessity to continue cervical cancer screening, HPV vaccination serves as an important tool in reducing cervical cancer rates and preventing HPV epidemics.[12,13] In Thailand, bivalent (Cervarix®) and quadrivalent (Gardasil®) are available and potentially prevent the infections for 48.6% and 74.5%, respectively.[6] Moreover, the Gardasil® can save 2,518.5 years per 100,000 persons.[10]

HPV vaccination is most effective if given during early adolescence, i.e. prior to an onset of sexual activity.[14] World Health Organization (WHO)[15] recommends HPV vaccination in boys and girls aged between 9 and 13 year old. Even so, the Advisory Committee on Immunization Practices (ACIP)[16] recommended that HPV vaccination could be given to females up to 26 years if they had not previously been vaccinated and who not yet become sexually active.

Currently, the disparities of the HPV vaccination are found in college age women, i.e. 18 to 26 years in Thailand. As the eligible recipient of the vaccine, they have no equal chance to get the vaccine compared with the women in the younger age range. When they were adolescent, the HPV vaccination program had not launched yet. However, now when they are at the college age, the HPV vaccination program provided by the government is only reaching for grade 5 school girl.[17] College women are still allowed to get vaccination and become the target population for HPV vaccine catch-up programming. If they want to get the vaccine, they can make an efforts to get the vaccine by their own. Outside the government free vaccination program, the vaccines are offered at total expense range from 6,200 to 12,400 bath for those willing to afford.[10]

The vaccination catch-up programming for women age 18 to 26 year is implemented in another country, i.e. Australia and America.[16,18] The reasons other than the age eligibility are cost effectiveness of the specific vaccination program and ability of this program to attain every woman who has risk factor for infections.[7,10] Moreover, expanding the catch-up among young adult women who get the health benefits the most from the program is a priority.[19] A study in Norway aimed to evaluate the advantages and cost-effectiveness of this vaccination schedule mentioned that a catch-up program ended at the age of 22 was found to be cost-effective.[20] Additionally, Burger et al[20] found that 5 years implementation of catch-up program after the routine HPV vaccination for preadolescent may be warranted. Importantly, it has been proofed that HPV infections were found to be proportionately higher in young women, aged 20-30 years (25%) in Thailand.[21] Thus, HPV vaccination needs to be publicly funded as a free vaccination program for all eligible population.

Moreover, the key issues in the vaccine introduction might appeared both in the policy and programmatic stage. The issues that should be considered in the decision making process are disease burden that can be prevented by the vaccine, the perception of the community about the vaccine, price, financial resources, efficacy, quality and safety of the vaccine and better acceptance and uptake of the vaccine.[22] Since the introduction of HPV vaccine in 2009 in Thailand, the result of a pilot study has revealed the acceptability among public health staff and teachers were 97.8% and 95.7%, respectively.[17,23] However, an attention about vaccine acceptability in a potential target group, such as young women remain limited.[24] High vaccine uptake is crucial to escalate the ability to reduce the bulk of burden in developing countries from the potentially vaccine preventable disease.[10] The lower of the uptake, the vaccination program become less cost effective.[10]

Uptake of the HPV vaccination significantly associated with the intent to receive HPV vaccine, since intentions are often conceptualized as the joint function to engage in particular behavior.[25,26] An average correlation of 0.5 between intention and behavior is resulted in a quantitative meta-analytic review of 34 studies.[27] Ajzen[25] on the Theory of Planned Behavior (TPB) mentioned that intention is a variable to predict an actual behavior. Furthermore, the average correlation between intention and behavior was 0.45 in a meta-analytic review of 98 studies employing TPB.[28] Another meta-analytic review about the TPB from 185 studies found that TPB accounted for 0.27 of the variance in behavior.[29] The applications of TPB to health-related behaviors resulted of an indication that the theory was very well for explaining the intention with an average predictive value was 0.41.[30] The TPB has demonstrated to be a valid theoretical framework for health promoting behaviors, account for 0.14 to 0.24 of the

variance.[31] Ajzen[25] on 1991 mentioned that the overall predicting potency of the TPB were ranged from 0.20 to 0.78 with an average of 0.51. Ajzen[32] claimed that the certain level of intention can be a valid predictor of behavior. All the findings above provide strength for the statement by Ajzen.[32]

Insight on factors influencing intention predicted by using behavioral theory are worthwhile for the intervention to increase intention. An Evidence Based Practice (EBP) denoted the potency of the information provided in the behavioral theory to increase intention using model-based intervention.[33] For instance, knowledge of college student population is increased prompt to an educational intervention on HPV based on the behavioral theory.[33-35]

Factors influencing intention for HPV vaccination had been investigated using the Theory of Planned Behavior (TPB), Health Beliefs Model (HBM) and Protection Motivation Theory (PMT).[36-41] Ratanasiripong et al[40] and Bennett et al[36] reported that two direct predictors of TPB, attitude and subjective norm toward HPV vaccination are important predictors of intention. However, several research guided by the TPB has not confirmed the ability of perceived behavioral control in predicting intention to obtain the vaccine of HPV among college women.[36,39,40] Other than direct predictors of intention mentioned in the TPB, Bennett et al[36] and He[38] had shown that one of the main variables of HBM, perceived susceptibility was associated with the intention to obtain vaccination. Study in Thailand by Ratanasiripong[41] also pointed perceived susceptibility as college women' reason for not being HPV vaccinated. In the US and Thailand, high cost of the vaccine as one of the components of perceived barrier in the HBM construct, mentioned by college women as the reason why they did not intend to obtain the HPV vaccination.[26] Response efficacy, as the central concept on

the PMT and HBM, was found to be the most important predictor of intention in Canadian college woman.[37] However, the role of response efficacy to predict intention in Thai college women has not been investigated yet.

Two cross sectional studies have searched the predictors of HPV vaccine intention in Thai college women.[24,41] However, until recently, no study in Thailand has excluded the participants from health-related faculty. Students majoring in health-related program has been proofed to possess a higher level of HPV knowledge because of more opportunity to gain the information compared with their counterparts attending non-health-related faculties, where the opportunity to get the information varies.[42] What is not yet clear is the role of the predictors found in the prior research on Thai college women studying in non-health related area. Thus, an endeavor to conduct an additional study employing predictor variable that has been mentioned above are needed to gain more understanding of intention to obtain HPV vaccine on marginal population.

The Objectives of the Study

Objectives of the study were to:

1. Explore the level of intention to obtain HPV vaccine among young Thai college women.

2. Determine the factors influencing the intention to obtain HPV vaccine among young Thai college women.

Research Questions

The study aims were to answer the following research questions:

1. What is the level of intention to obtain HPV vaccine in young Thai college women?
2. What are the factors of the intention to obtain HPV vaccine in young Thai college women?

Conceptual Framework

The research framework is constructed using the Theory Planned Behavior (TPB), a model for many health behaviors, particularly those for vaccine uptake in young women.[25,43,44] Additional variables of interest in the framework construct are derived both from the literature review and interview. These were used as a guide to understand the predictor of intention to obtain the HPV vaccine

The TPB noticed a person's intention is influenced by indirect predictors and direct predictors. The direct predictor i.e. attitude toward the behavior, subjective norm and perceived behavioral control are accountable of the variance in intentions with the average multiple correlations were 0.71.[25] According to Ajzen[25] attitude toward a behavior refers to the degree of favorability toward certain behavior. Subjective norm refers as the person's motivation to obey of approval or disapproval of a particular behavior from important people.[25] Perceived behavioral control refers as a perception of the ease or difficulty of carrying out a particular behavior of interest.[25]

A literature review on the independent variables which significantly associated with the intention to obtain the vaccine was conducted. Among significant variables found in the literature review, perceived susceptibility, perceived response efficacy and cost were not overlapping with the variables on the TPB. Perceived susceptibility related to self perception on the chances of developing any condition or risk to engage in a disease.[45] Response efficacy is conceptualized as a belief in the ability of a recommended behavior to alleviate a health threat.[46] Cost of HPV vaccine was part of perceived barriers. Perceived barriers were explained as someone's opinion of the tangible and psychological costs or perceived obstacles in order to do a health behavior.[47]

Lastly, seven identified themes in the interview were similar and congruent with the variables which had been previously included in the conceptual framework. Thus, only one theme that has not been included in the conceptual framework. The theme about knowledge of HPV and cervical cancer is remain interesting to explore as the predictor of intention. The knowledge frequently mentioned in the interview was about cervical cancer, HPV, vaccines and transmission of the HPV.

As a universal order, the more favorable the attitude toward the behavior and subjective norm, the more prominent the perceived behavioral control, the more intense the behavioral intention should be.[25] When women have a higher perception of susceptibility, accordingly intention to obtain the vaccination could increase.[44] The more belief women put into the ability of HPV vaccination to remove the threats, it shapes women's decision making process and subsequently affects her intention of obtaining HPV vaccination.[37] Additionally, women were likely to be unvaccinated if

they had high scores for cost of vaccination.[48] Moreover, women won't obtain an HPV vaccine when they were not familiar with the cervical cancer, had a limited knowledge of HPV and vaccines as well as vague about the transmission of HPV.

All seven expected predictors variable provides a framework for understanding the antecedents of intention to obtaining HPV vaccination. The expected direct predictor of the intention to obtain HPV vaccine is illustrated in Figure 1. Using this conceptual framework, findings from this study informed future intervention that aims to increase HPV vaccine intention.

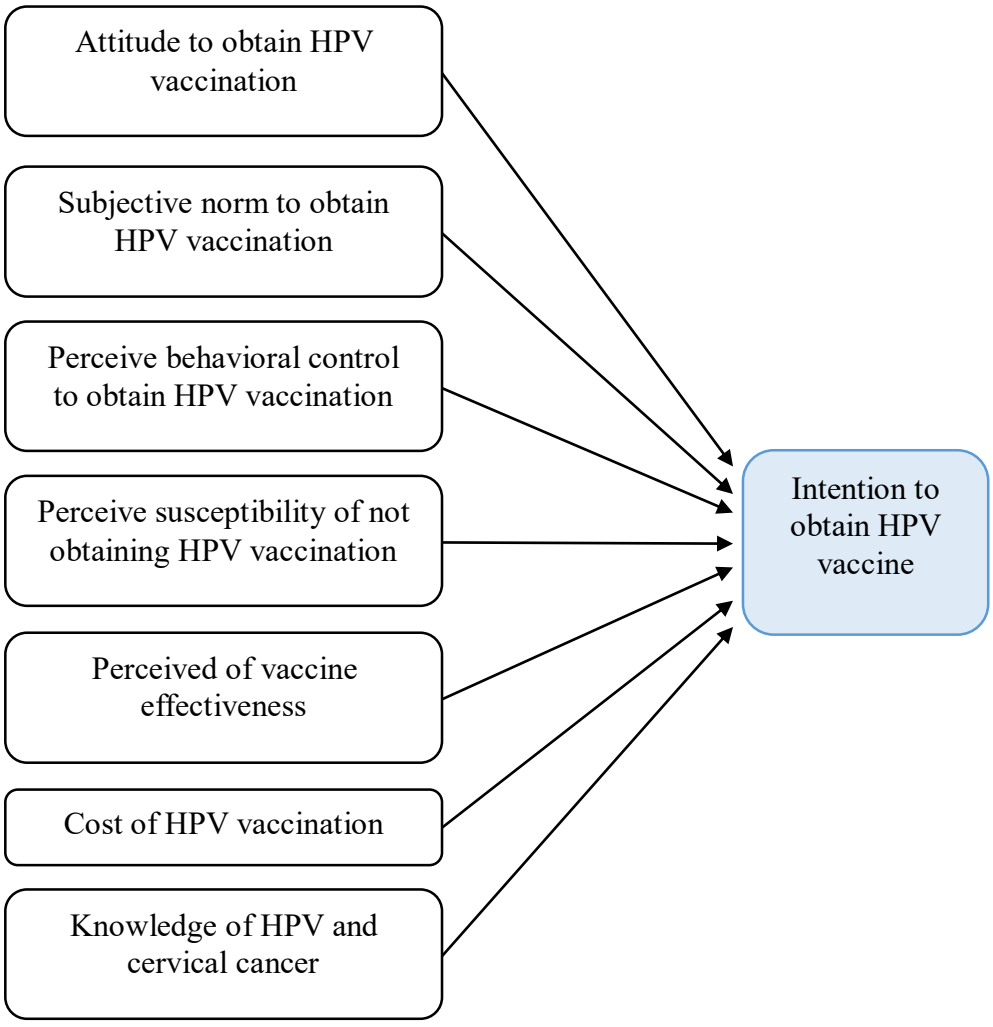

Figure 1 The conceptual framework employed in the study

Definition of Terms

1) *Attitude to obtain HPV vaccination* refers to women's feeling about the idea, favorability, usefulness, safety, pleasantness and desire to obtain HPV vaccination.

2) *Subjective norm to obtain HPV vaccination* is defined as women's agreement towards boyfriend or girlfriend, parents, physician, public health nurse, best friend and teacher disapproval about obtaining the HPV vaccination.

3) *Perceived behavioral control to obtain HPV vaccination* is defined as women's identification about their own confidence to obtain HPV vaccination and to overcome the obstacle that prevent from obtaining HPV vaccination.

4) *Perceived susceptibility of not obtaining HPV vaccination* is defined as women's understanding of their chances of developing a genital HPV, cervical cancer and genital warts if they are not obtaining HPV vaccination.

5) *Perceived of vaccine effectiveness* is defined as women's recognition in their ability of protection of their health status specifically against genital wart, cervical cancer and HPV infection if they are obtaining HPV vaccination.

6) *Cost of HPV vaccination* is defined as women's estimation of the obstacles they faced that prevent them from obtaining HPV vaccination.

7) *Knowledge of HPV and cervical cancer* is defined as women's understanding of HPV infections and cervical cancer, such as behavioral risk factor, causal, prevention and treatment.

8) *Intention to obtain HPV vaccine* is defined as women's plan and expectation to obtain HPV vaccination.

Scope of the Study

The study was conducted at non-medical faculty of Prince of Songkla University, Hat Yai Campus, Thailand and Songkhla Rajabhat University.

Significance of the Study

The result of this study provides a useful information regarding college-aged women's attitude to obtain the HPV vaccination, subjective norm to obtain the HPV vaccination, perceived behavioral control to obtain the HPV vaccination, perceived susceptibility of not obtaining HPV vaccination, perceived vaccine effectiveness, cost of HPV vaccination, knowledge of HPV and cervical cancer as well as intention to obtain HPV vaccine. Information gained through this research may aid pharmacist to develop relevant educational materials and specific instruction for college aged women in order to enhance their intention for HPV vaccination.

CHAPTER 2

LITERATURE REVIEW

Past and current literature on HPV, cervical cancer and vaccines has been reviewed to provide a context and theoretical foundation for the study. The review outline is presented as follows:

1. Overview of the Cervical Cancer
    1.1 Epidemiology and etiology of cervical cancer
    1.2 An overview of Human Papillomavirus (HPV)
    1.3 Prevention and screening of cervical cancer
    1.4 Missed opportunities of cervical cancer prevention and screening
2. Factors Influencing Intention to Obtain HPV Vaccine
    2.1 Attitudes to obtain HPV vaccine and attitude toward HPV
    2.2 Perceived susceptibility
    2.3 Perceived response efficacy
    2.4 Cost
    2.5 Knowledge and awareness of HPV and HPV vaccine
3. Sexual Behaviors Associated with the Intention to Obtain HPV Vaccine
4. Overview of Theory of Planned Behavior (TPB)
    4.1 Determinant of HPV vaccination intention based on the TPB
5. Theory application
6. Summary of the Literarture Review

Overview of the Cervical Cancer

Cervical cancer is a common concern for women around the world. This introduction will be explained in this following manner: epidemiology and etiology of cervical cancer, an overview of human papillomavirus (HPV), followed by prevention and screening of cervical cancer and missed opportunities of the prevention.

Epidemiology and etiology of cervical cancer

At 2012, 8,184 new cervical cancer cases are diagnosed.[3] The new cases of cervical cancer are higher among age 45 to 49 years old with 1,234 annual number of cases.[3] More than 28,3% of cervical cancer occur in women younger than 45 years.[3] Fifty seven percent cases occur in women age more than 49 years.[3] Additionally, about 4,513 cervical cancer deaths occur.[3] Highest annual deaths with the number of 530 cases occur in the age of 45 to 49 years.[3]

Invasive cervical cancer is mostly anticipated by a continued period of preinvasive disease.[49] The disturbance starts with persistence of high risk HPV while continuous metaplastic changes in the squamocolumnar junction between endocervix and ectocervix happened.[50] In detail, the four major steps lead to the disturbance are HPV infection on the epithelial layer, viral persistence, progression and invasion of the epithelial membranes. All the epithelial abnormalities of the cervix are encompassed by the term of cervical intraepithelial neoplasia (CIN) as a single neoplastic continuum.[51] However, based on the histopathological appearance, CIN is classified from mild to moderate to severe, i.e. CIN1, CIN2 and CIN3, respectively.[52]

Cervical cancer is the most common HPV associated cancer.[53] HPV is a primary and a crucial element of cervical cancer, a woman must be infected with HPV to develop cervical cancer.[54,55] Almost 99% of cervical cancers carry the DNA of HPV, with high risk HPV genotype, type 16 and 18 are associated with 70% of cervical cancer cases.[55-57] Another HPV type like, HPV 58, 33, 45,31, 52, 35, 59, 39, 51, 56 are the most typical groups correlated with invasive cervical cancer.[56]

An overview of Human Papillomavirus (HPV)

In Thailand the prevalence of HPV infection in 2007 is 88.8%.[6] The highest prevalence found in the southern region (97.1%) and the lowest found in the central region (78.6%).[6] The prevalence of HPV in Thailand is highest among young women under 25 years, decreasing prevalence on the ages of 25 to 64 years and the second peak on the age over 65.[3] The peak of the prevalence among women <25 years happened because women are starting to have sexual intercourse.[58] Study in Lampang and Songkhla provinces has shown that the major risk factors for having an HPV infection are aged <35 years, HSV-2 seropositive and having a husband with extramarital sexual partners.[58]

HPV-related diseases giving a charged on health and cost burdens in Thailand.[59] The long-term burden of cervical cancer, CIN and genital warts on the direct cost per patient depends on the stage of the case.[59] Stage IA1 for 41,117 Thai Baht, stage IA2-IIA for 97,250 Thai Baht, stage IIB-IVA for 402,683 Thai Baht, stage IVB for 322,619 Thai Baht, CIN1 for 5,381 Thai Baht, CIN2/3 for 49,933 Thai Baht and genital warts for 3,585 Thai Baht.[59] Per a cohort of 100,000 women, the overall lifetime costs from the perspective of the provider are calculated at 859.1 million Thai Baht.[59]

In such a manner, for the current number of Thai 12-year-old girl, the overall lifetime cost is approximately 4,244 million Thai Baht.[59]

The various risk factors for acquiring HPV, including physiological, behavioral and psychosocial are increasing on college women.[60] Nowadays, sex under the age of 20 with inconsistence condom use is a growing trend among youths in Thailand.[61] Parallel with the low cognition of condom use in youth, this trend could increase the possibility of contracting sexually transmitted diseases.[61] Moreover, physiological factors such as stress play a significant role in whether a woman with HPV can get rid of the infection or not.[62] Women with self-destructive coping strategies, i.e. drinking, smoking cigarettes or taking drugs when stressed more likely to develop an active HPV infection.[62] Besides, women who were depressed or perceived themselves to have lots of stress were more likely to have HPV persistence.[62] Study in Sweden showed that 43% cervical cancer patients experienced a stress-related mental disorder or stressful life event before diagnosed and 88.9% had a stress-life event.[63] The impact of stress induced cervical cancer might vary, for middle-aged women, divorce has greater impact on cervical cancer risk than widowhood.[64] Additionally, psychological stress in early life, such as loss of parents in childhood was more likely to affect greater risk of cervical cancer.[65] The psychological stress and carcinogenesis is explainable using several potential biological mechanisms.[66,67] The decrease of platelet serotonin (5-HT) in women with cervix cancer was detected.[66]

College women who reported their first sexual intercourse ≥20 years old showed higher possibilities to acquire HPV compare to those with a younger partner (≤16 years old).[68] Similarly, women with 2 or ≥3 sexual partners showed higher odd to have the HPV than student with 1 sexual partner.[68] A college student who did not use

condoms in the last sexual intercourse had higher odds to be positive for HPV DNA compared to those that use a condom.[68] Another behavioral characteristics associated with HPV on young women were the practice of both vaginal and anal intercourse regularly. The HPV infection on the anus are becoming quite common.[69] As the further matter, the type of HPV in the anus and cervix were similar.[69] Additional factor like having a laboratory documented sexually transmitted infections (STIs), i.e. herpes simplex virus (HSV) were strongest sexual risk factor.[69] STIs can induce inflammation resulting in breaks in the epithelial barrier, allowing HPV direct access to basal epithelial cells.[69] High intake of alcohol increases the prevalent infection of HPV among men.[70] Nevertheless, high risk HPV positive women who were at high frequency and large amount of alcohol drinkers had an increased risk of CIN1 compared with nondrinkers.[71]

Many emerging adults in the age of 18-25 years old report unfulfilled health needs and disproportionately experienced problems such as STIs which able to cause a serious negative effect when it left unsolved. [72] It is important to collaborate between health service staff and boarder campus staff because student often turns to campus staff initially.[72] An information through informative websites including detail of health provider on campus are also necessary.[72] The knowledgeable and a professional staffs are considerable factors for college students to find out of their sexual health concern.[72] The provider characteristics such as being caring, welcoming, understanding, friendly and nonjudgmental, making student comfortable, ensuring the confidentiality and good listener are what students think as an important factor for them to consult their sexual health problem.[72] For the example, as one of the ways to reduce

STIs such as HPV, 90% of women 18-26 years old reported that they would like to initiate the vaccine series if a provider recommended it.[73]

Prevention and screening of cervical cancer

Cervical cancer often prevented by controlling possible risk factors, specifically having both primary (HPV vaccine) and secondary (regularly screening) prevention.[74] Some risk factors for cervical cancer, such as more than three full-term pregnancies, long term use of oral contraceptives, and tobacco smoking are controllable.[75,76] Furthermore, other risk factors such as number of lifetime sexual partners, age of first sexual activity and sexual activity of a woman's partner are also able to control.[75]

Acquisition of HPV infection could be triggered by having numerous pregnancies or immunosuppressive effect on the cervix.[77] Pregnancy induced the hormone and affected HPV genome elements.[77] The potential effects of the hormone on the HPV infected cervical cells also possibly caused by an oral contraceptive.[77] The steroid stimulation may prompt the virus assimilation into the genome of the host.[77] A notorious risk factor for cervical cancer is tobacco smoking.[78] A proof of the direct carcinogenic effect of cigarette smoking is the appearance of nicotine metabolites in the mucus of the cervix.[78] The another possible mechanism is reduction of immune response to HPV.[79] The risk factors mentioned above are not related to sexual behavior factors.

As part of the cervical cancer prevention, an organized screening program is available in Thailand since 2002.[80] However, on 2005, the Ministry of Public Health (MOPH) revealed only 37.7% of women age 15 to 44 years undergoing

the cervical cancer screening.[81] Thus, on 2005, the National Health Security Office (NHSO) boosted the cervical cancer screening program for both the PAP smear and visual inspection with 3-5% acetic acid (VIA) to be available nationwide either in the public sector or individual health care provider.[81] Finally, prophylactic HPV vaccines covered by school-based vaccination program start from 2014.[17]

PAP smear

In Thailand, PAP smear is recommended for the entire population of women age 35 to 60 years at 5-yearly intervals.[81] PAP smear is a cytology-based cervical cancer screening introduced by George Papanicolau, MD in 1941.[82] The method works by scraping cervix cells and spreading onto a glass slide, prompt alcohol fixation conducted.[82] To minimize inaccurate and equivocal diagnoses, a recent method of collecting all the cells in a small liquid container became a new procedure and referred as the liquid-based PAP tests.[82] Instead of smearing on a glass slide, the specimen is secured in a vial with 20 mL of preservative an transported to the cytology laboratory.[82]

The accepted nomenclature for PAP smear for reporting cervical cytology was standardized by the Bethesda System.[83] This system was originally proposed in 1998, since then, it has been revised several times.[83] The current system was developed in 2014.[84] Under this system, normal cell is reported as negative for intraephithelial lesion or malignancy.[85] Sample with squamous and glandular cell abnormalities are divided into following categories:[84]

Squamos cell abnormalities

Atypical squamous cells (ACS) is the most common abnormal finding in PAP test.[84,85] This abnormality categorized into Atypical Squamous Cells of

Undetermined Significance (ASC-US) and Atypical Suamous Cells, cannot exclude a High-grade squamous intraephithelial lesion (ASC-H).[84,85] LSIL characterized by early changes in the size a shape of cells.[84,85] It is encompassing mild dysplasia or CIN 1.[84,85] HSIL is characterized when more evident changes in the size and shape of precancerous cells.[84,85] It is encompassing moderate and severe dysplasia, such as CIS, CIN 2 and CIN 3.[84,85] SCC is happening when an abnormal cervical squamous cell invades deeper into the cervix.[84,85]

Glandular cell

Atypical Glandular Cells (AGC) is indicated when the glandular cells do not appear normal, however the specific cell changes cannot be determined.[84,85] Endocervical Adenocarcinoma In Situ (AIS) characterized by any precancerous cells found in the glandular tissue.[84,85] Adenocarcinoma is a cancer that includes not only endocervical but also both endometrial and extrauterine.[84,85]

PAP smear has a sensitivity ranging from 60 to 90% for the detection of clinically significant high grade squamos intraephitelial lesion (HSIL) or carcinoma and permit to do over again in a short intermission to enhance the efficacy.[82] Despite all the successful achievement of PAP smear, several limitations of PAP test, including anxiety and physical discomfort and poor PAP test uptake might happen.[14]

VIA

Visual methods of screening, including VIA could be served as an alternative method, even though PAP smear may be feasible in middle-income countries.[86] The VIA target covers women younger than 45 years old, especially between 30 and 44 years.[81] VIA conducted by paramedical through bare eye

examination of unmagnified 3-5% acetic acid and a swab of uterine cervix and helped by a bright light.[86] The VIA positive test outcome is the detection of well defined, dense acetowhite areas.[86]

The VIA screening is described as negative if it included these following observations: no white lesions observed, faint line-liked translucent acetowhitening, acetowhite lesions far away from the transformation zone and prominent squamo-columnar junction.[86] VIA has several advantages such as real-time test and the result shows after the women were tested.[86]

A research proof that VIA was more sensitive than cytology, but less specific.[86] Unfortunately, VIA has low specificity which leads in an over-examination and over-analysis in test and treatment of the conditions.[86] Additionally, VIA was more cost-effective than cervicography.[86] A cost-effectiveness analysis comparing VIA, HPV cytology screening and treatment algorithms in Thailand, proof VIA as the most cost effective medical care to deal with cervical cancer under certain conditions found in developing countries.[86]

HPV vaccine

The development of a vaccine provides protection against the most common and most cancer-causing types of HPV[7]. The Food and Drug Administration (FDA) has approved three vaccines to prevent HPV infection, i.e. Gardasil® (quadrivalent), Gardasil® 9 (9-valent), and Cervarix® (bivalent).[87-89] The detail information regarding about the characteristic of each vaccine is available in Table 1.

Table 1 *Characteristic of HPV vaccines*

	Gardasil®	Gardasil9®	Cervarix®
Manufacturer	Merck	Merck	Glaxo Smith Kline
VLP Types	6/ 11/ 16/ 18	6/ 11/ 16/ 18/ 31/ 33/ 45/ 52/ 58	16/ 18
Dose of L1 Protein	20/ 40/ 40/ 20 µg	30/ 40/ 60/ 40/ 20/ 20/ 20/ 20/ 20 µg	20/ 20 µg
Producer Cells	Saccharomyces cerevisae expressing L1	Saccharomyces cerevisae expressing L1	Trichoplusia ni (Hi 5) insect cell line infected with L1 recombinant baculovirus
Adjuvant	225 µg aluminum hydroxyphosphate sulfate	500 µg amorphous aluminum hydroxyphosphate sulfate	500 µg aluminum hydroxide, 50 µg 3-O-deacylated-4'-monophpsphoryl lipid A
Injection Schedule	0, 2, 6 months	For 9-14 years: 0, 6-12 months For >14 years: 0, 1-2, 6 months	0, 1, 6 months
References	89	88	87

These vaccines have not been demonstrated to provide protection against disease from vaccine and non-vaccine HPV types to which a person has previously been exposed through sexual activity.[13] Both the Food and Drug Administration (FDA) and ACIP have approved a 2-dose schedule for boys and girls initiating vaccination with Gardasil 9 at ages 9 to 14 years (the second dose is to be administered 6–12 months after the first).[87] Those initiating the HPV vaccination series

in the older ages (including teens who begin getting vaccinated after they turn 15 years old) or who are immunocompromised should still be vaccinated according to the 3-dose schedule (0, 1-2, 6 months).[87] The schedules for two time vaccination of the school girl grade 5 are organized by the government of Thailand.[23] On the 2018, all the girl in grade 5 on 25 provinces will receive the vaccine.[23] The government estimate by the end of 2020 the HPV vaccination will reach all countrywide.[23]

Despite the necessity of the HPV vaccine, the uptake rates across the country are little understood.[3] A study conducted in 2014 among 1,736 school girls showed that 91% participants received at least one dose of an HPV vaccine.[23] However, the only 87.4% finished the second dose.[23] In 2012, a study conducted in Northern Thailand found an uptake rate of 1.2% in a sample of 386 young adult women aged 18-24 years.[24] As recent in 2015, study in four universities, among women aged 18-26 years in Thailand reported that 34 out of 1,030 participants had received the vaccine.[41]

Missed opportunities of cervical cancer prevention and screening

The nationwide screening program in Thailand is finished within two phases in 2014.[10] As recent in 2014, 8,621,398 women are screened, with mostly undergone PAP smear test and 122,413 of the women did a VIA test.[9] Based on the average annual percent changes (AAPCs), decrease of cervical cancer from 2000 to 2012 are 4.4%.[90] It is projected that by 2025 cervical cancer had a large decline in incidence and account only 7% of female cancer.[90] Thus, the national screening program has greatly decreased the rates of cervical cancer.

However, this decrease has not been equally observed across all populations. Disparities in incidence and mortality persist across certain age.[3,81] In

Thailand, cervical cancer screening is not incorporated in the nationwide program for women under 30 years.[81] Approximately 2,2% of cervical cancer cases occur among female, age 15 to 29 years.[3] Among female in the disadvantaged population, recent cancer surveillance data show that the highest age-adjusted incidence rate is in the age of 25-29 followed by 20-24 and 15-19 years old.[3] Mortality rate also shows similar patterns, with the highest mortality rate amongst 25-29 years.[3]

Factors Influencing HPV Vaccine Intention

A literature review highlights the challenges that encounter people's intention to obtain HPV vaccine was conducted. The researcher short the article that match the inclusion criteria, i.e. focused on the factors predict the intention of obtaining HPV vaccine on all countries, age ranges and genders and should be written in English. The studies from various countries was included because the study in Thailand still limited. The researcher also hypotheses that there are chances of the predictors of the intention that found in different gender and age group are going to predict the intention in Thai college women. This was based on the expectation that a distinct point of view might exist in several cultures, countries, policies and health system. Finally, 12 articles were included.

The researcher was gaining insight into the factors that play important role in the multiple regression by seeing the variable importance. To assess the variable importance on each literature the beta weights were used. The beta weights (β) for independent variable indicate the expected increase or decrease in the dependent variable, in standard deviation units.[91] More specialized, the researcher only includes

beta weight that was significantly associated with the dependent variable. However, some of the literature using odd ratio (OR) associated with each factor to explain the relationship between one dependent variable and independent variable. Selected articles implementing the Theory of Planned Behavior (TPB) concepts and other health theory to predict the intention to obtain HPV vaccine are summarized in Appendix 2.

Attitudes to obtain HPV vaccine and attitudes toward HPV vaccine

Many of studies from different participants, such as men sex with men (MSM), men sex with women (MSW), adolescent girl, daughter, mother, college women and men believed that an attitude to obtain HPV vaccine was a predictor of HPV vaccination intention.[92-96] Increase favorable attitudes toward getting vaccinated could be conducted by changing some behavioral beliefs such as risk perception.[60] About 69.9% or 60.2% of 1375 of female respondents had the attitudinal likelihood to ask the doctor to vaccinate them or to make an appointment to be vaccinated, respectively.[97] However, Teitelman et al[98] reported that the positive attitude to obtain HPV vaccine became decreased when the time duration of vaccination limited to 12 months.

Positive attitudes toward HPV vaccination, such as HPV vaccine is beneficial for girls, cervical cancer is a serious illness, HPV vaccine is effective in preventing cervical cancer, childhood vaccines are beneficial and HPV vaccine is safe were the strongest predictor of mothers' intention to vaccinate.[92] However, some research applying TPB construct proof the indirect predictor of intention, i.e. attitude toward the vaccine were not directly link to the intention to obtain the vaccine among

college men and women.[40,95] In this respect, the attitude considered too general in nature to have practical relevance.[96]

Perceived susceptibility

The study result from 1,348 adolescent and young women aged 14-24 was found only 12.7% of them perceived themselves high risk of contracting HPV infection and 19.9% perceived themselves high risk of developing cervical cancer.[99] However, in the college women population, 21.7% perceived themselves as low risk because they only have one partner and consistent of the condom use.[60] Incorrect beliefs about perceived risk was contributed from the lack of knowledge.[60] Interestingly, respondents who stated that they were at high risk of getting cervical cancer had a significantly higher willingness to be vaccinated.[100] Perceived susceptibility owns a significant predictor of intention in young women among the HBM and TPB construct.[36] Young women's decision-making can be focuses on how susceptible she deems herself to be.[36]

Perceived response efficacy

Response efficacy was explained as an expectancy that carrying out recommendations can remove the threat.[101] The threat removed from being vaccinated against HPV was cervical cancer and HPV.[101] Response efficacy was significantly predicted for 0.24 of intention.[101] One study in college women by Gainforth et al[37] reports that response efficacy significantly predict for intention.

Cost

Three studies have reported cost, one out of six key concepts of the Health Beliefs Model (HBM), as the predictor of the intention to obtain HPV vaccine.[26,44,48] One study measured cost as a single latent factor which reflected distinct barrier on HPV vaccine uptake.[44] Prior research also suggests that those who does not have an insurance such as parental health insurance and supplemental insurance or when vaccination does not covered by the student health insurance, the intention to undergo vaccination tend to be low.[26]

Knowledge and awareness of HPV and HPV vaccine

Knowledge about HPV can be influenced by the family, such as parent and social environment.[102] School as one form of the social environment could promote a protection, like the HPV vaccine in order to prevent HPV infection.[102] The proper health program with the combination of media promotion are also effective to introduce the vaccine.[102] Moreover, the vaccine promotion is possible to be delivered through community education and awareness-raising.[102] An experimental study among fifth grades of school girls and boys in Korea found that the awareness prior to the education session was low with only two boys knew that HPV is a virus.[103] After two hours education the awareness was increased.[103] The awareness about the ability of HPV vaccine to prevent cervical cancer was found as the most significant factor related to intention to obtain the HPV vaccine.[103] The same result also found in the sexually experienced females 13-26 years of age.[104] In accordance with result from the two studies mentioned above, a study among Taiwanese mother shows the same result that the intention to vaccinate their daughter was related to the HPV awareness.[105]

The level of awareness of HPV vaccine was relatively high in different study population. For instance, study in Hongkong found that the majority of adolescent girl, as many as 71.9%, were aware that HPV vaccination can prevent cervical cancer.[93] Among unvaccinated women, their awareness was relatively high, with >65% of them ever hearing of a vaccine to help prevent cervical cancer or HPV infection.[97] Although the high level of awareness, various reasons were popping up when the researcher tries to relate the participants' awareness and their low intention to obtain vaccine.[97] The reasons were married or in a monogamous relationship, the HPV vaccine was too new, not enough information, concerned about side effects of the vaccine and the cost of vaccine.[97]

In college women population, the level of awareness was high both for HPV and HPV vaccine with 94% and 91%, respectively.[39] College women's awareness was reported to have a relation with the phenomena of an early age on first sexual intercourse, the younger they engaging first sexual intercourse more aware women with the need of HPV prevention.[40] The HPV vaccine-related awareness and association between religious practice was researched among young women in the US, the findings indicate that religious participants tend to be less vaccinated and under informed about HPV and HPV vaccine.[106] Below the level of college women's awareness of HPV and HPV vaccine, college men awareness was relatively enough with a percentage of 51.2 (210 of 410 respondents).[95] Another research found about nearly half of college men (45.3%, n=116) had never heard of HPV vaccine and one third (31.3%; n=80) of the sample had never heard of HPV.[107] Even more, the awareness remains appear in a lower percentage in the men sex with men population.[94]

Increase HPV knowledge could positively influence the intention to obtain HPV among the youth.[103] Bowyer et al[108] in 2013 confirm that girls who had higher knowledge more likely to have received the vaccine. Study in Hongkong among adolescent on 2014 shows that the intention group had higher knowledge score compared to the people who contemplate about their vaccination decision.[93] Study in Taiwanese female college women also found that knowledge was significantly associated with the intention to vaccination.[109] Besides, knowledge was also found to have a higher and significant effect on intention to obtain vaccine among men sex with women compared to men sex with men.[94]

However, the relationship between HPV knowledge and vaccination intention has been found to be inconsistent. Some studies suggests that knowledge of HPV and HPV vaccine is not a primary determinant of any vaccination status. A study in 2014 among adolescent and parents, found the low knowledge of the health consequences and symptoms of HPV; HPV and cervical screening; HPV causes, risk factors and transmission; HPV prevalence and HPV vaccination and cervical cancer prevention, with the slightly less than 50% were knowledgeable.[110] The study explained that there was no association of the vaccination intention with knowledge, both on the parentage and adolescent population.[110] Another evidence of no direct association between knowledge and intention to obtain vaccine was found among American college women in the study conducted by Ratanasiripong et al[40] and Bennett et al[36]. Bennett et al[36] report that the knowledge related to the HPV and HPV vaccine were poor. As few as 48% of 447 women knew that the majority of sexual active people will contract HPV at some point in their lifetime, 39% among them understood that HPV causes genital warts, with the lowest knowledge was the fact that condoms do not prevent the spread

of HPV.[36] Not only women, but also college men had the insignificant relation of HPV and HPV vaccine knowledge with the vaccination intention.[95] Another study among 304 college men, 208 had a right answer for half of the questions.[111] Yet, the result indicated that male college students' level of knowledge was not significantly correlated with their intention to be vaccinated.[111] The finding of no relation between high knowledge and low intention was strengthened by a study in 2013 in the Netherland.[96] They found a relatively high knowledge (≥70%) among mother was not attributed to their HPV vaccination intention.[96] Despite of much information about knowledge that did not correlate with intention, Kietpeerakool et al[112] found that there were a relationship between knowledge and attitude. This inconsistency supports the belief that knowledge is not directly linked to behaviors.[25]

Sexual Behaviors Associated with the Intention to Obtain HPV Vaccine

Mothers who understand that women who have experienced a sexually transmitted infection are more likely to get cervical cancer are significantly willing to vaccinate their daughters'.[100] Parents often attributed cervical cancer to sexual activity.[113] An awareness of the link of cervical cancer and sexual activity, made parents tended to perceive higher levels of preventable behavior over cervical cancer.[113] Perceiving cervical cancer as preventable disease was significantly related to the parental vaccination intention.[113] Strengthen those findings, some research also stated that mother's beliefs for their daughter to get the HPV vaccination if she is already sexually active, the importance that children be vaccinated against HPV before sexual debut, HPV vaccine will not make children sexually active at an earlier age, adolescents

who receive the HPV vaccine will not encourage them to engage in unsafe sex and adolescents who practice safe sex will avoid HPV acquisition were also significantly associated with the mother's willingness for their daughter to receive HPV vaccination and a greater intention of seeking HPV vaccination for their daughters.[96,105]

In contrast, a research found that parents' intention to vaccinate their daughter was not predicted by the perceived vulnerability of HPV.[37] A study among mothers of adolescent girls in Japan found that their intention were correlated with mother educational background.[114] Moreover, a study found that beliefs about the vaccine would be encouraging sexual activity was not related to intention to vaccinate girls.[92] However, on parents who has sons perceived vulnerability was predicting the intentions. It might caused by the unwillingness of parents that have daughters to think that their daughter will be sexually active in the future compared to parents of sons.[37]

Adolescent and young women clearly felt by making the decision to vaccinate before becoming sexually active was important.[99] In spite of that, a research in college men with the 85% of the participant reported have had a sexual intercourse and 97.4% heterosexual showed positive perception to take the HPV vaccine and it significantly related to intention to obtaining HPV vaccine.[115] Some study found that person who never uses condoms and have a history of STI tended to report a higher intention to be vaccinated.[98,104] Moreover, riskier sexual behaviors such as having more than one sexual partner associated with the HPV vaccine intention among young women, MSW and MSM.[94,104] Being MSM or MSW, was significantly associated with HPV vaccination intention.[94] In fact, men sex with men (including both men who have sex with only men and men who have sex with both men and women) had a higher vaccination intention than MSW.[94] Some misconceptions related to the sexual behavior,

such as women felt that the vaccine is only necessary to those who were sexually active or had multiple sexual partners were found.[116] A cautious interpretation of a systematic review and meta-analysis found that concerns about risky sexual behavior were shown among Thai college student as the reason of not vaccinated against HPV.[117]

Overview of Theory of Planned Behavior (TPB)

As the result of expansion of the Theory of Reasoned Action (TRA) the Theory of Planned Behavior (TPB) was presented by Ajzen[32] in 1985. An individual-focused explanation provides by the TPB able to predict a health behavior.[118] The predictive efficiency of TPB across numerous behavioral domains has been proofed on many meta analytic studies and reviews of meta analysis. [28-30]

The TPB noticed a person's intention is a function of attitude toward the behavior, subjective norm (complying with the expectations of others) and perceived behavioral control.[25] As a universal order, the more favorable the attitude toward the behavior and subjective norm, the more prominent the perceived behavioral control, the more intense should be the behavioral intention.[25] The three predictors in the TPB are accountable of the variance in intentions.[25] The multiple correlations ranged from 0.43 to 0.94, with an average correlation of 0.71.[25] The TPB direct constructs and background factors with their relationship are illustrated in Figure 2.[119]

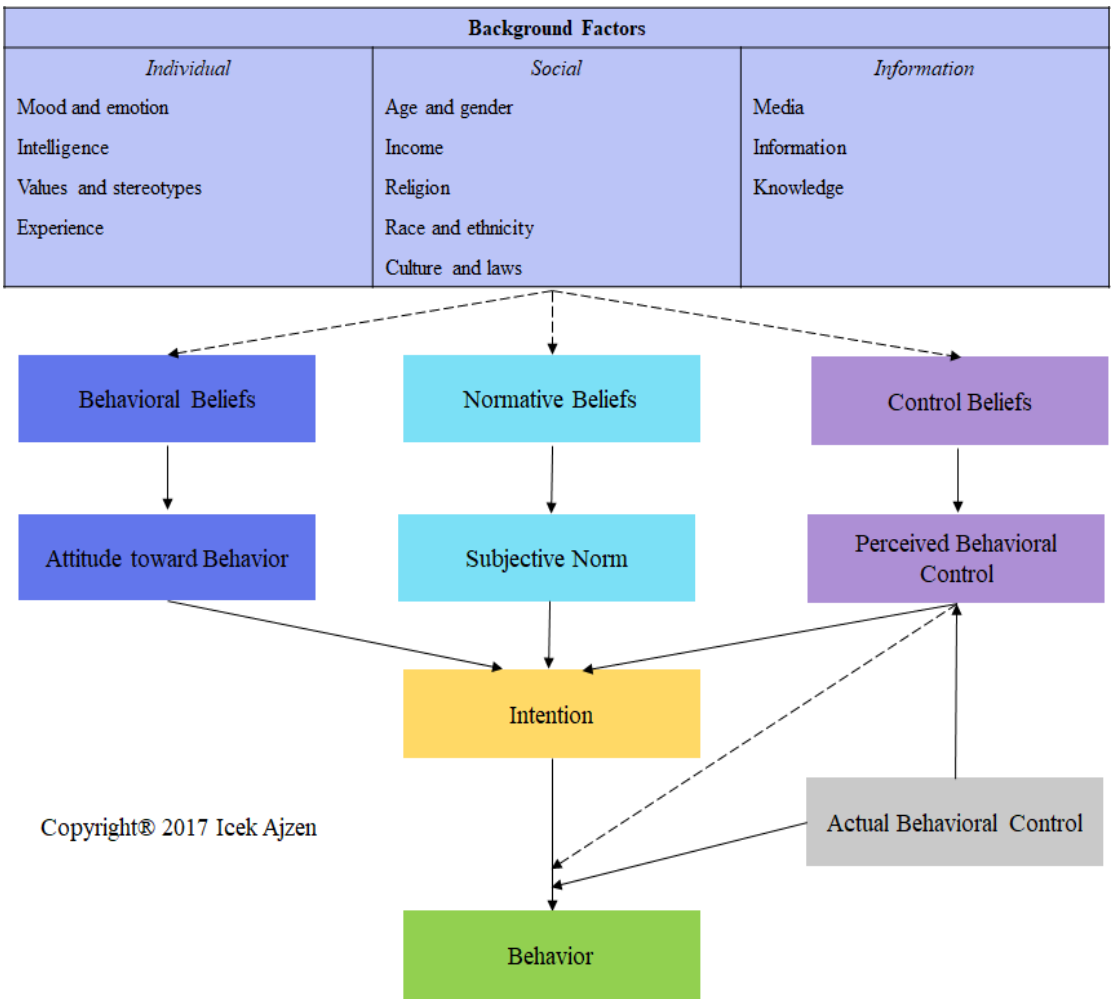

Figure 2 Theory of Planned Behavior Model with Background Factors

Determinant of HPV vaccination intention based on the TPB

Several research applying TPB in order to predict the intention to obtain HPV vaccine was reviewed. The researcher found that each construct resulted in various coefficient prediction and showed a distinct significancy on the ability to predict the intention. The dissimilar nature of the study, such as the background and other factors along with how its influence the ability to predict the intention discussed further below.

Attitude toward the behavior

Across the various HPV vaccine research, the term of attitude toward behavior used was varied, such as attitude of getting the HPV vaccine, attitude to obtain HPV vaccine, attitude about receiving HPV vaccine and attitude to vaccinate. Sometimes written as attitudes toward the vaccine, yet, when the article was comprehended, the definition of term reflected the same meaning with the meaning of attitude toward the expected behavior and not an attitude toward an object. For the example, a study by Bennett et al[36] used the term of positive attitude toward the vaccine. However, the item measured participants' attitude toward obtaining the HPV vaccine.[36] As expected, attitude among young women was significantly predicted the intention.[36] Another research among college women was also using the term of attitude toward the vaccine.[39] The items of the questions were mixed, one question implies the attitude of receiving the HPV vaccine, while the other two questions are about recommending the HPV vaccine to other women or men if HPV vaccine available for men.[39] However, the higher positive attitude was the predictor for intention.[39]

In a college male population, attitude toward getting vaccinated had a significant direct effect to the behavioral intention.[107,111] One more research on a college men population was also found that attitude getting vaccinated predicts the intention with the coefficient correlation 0.49.[95] Among disadvantage women, attitude toward starting HPV vaccination series contribute to the beta weight coefficient and predict the intention significantly.[98] Echoing the previous research, attitude getting vaccinated among college women and girl were predicting the intention about 0.37- 0.51.[40,96] Congruent with another result, the mother's attitude to vaccinating their daughter play a role as the most significant predictor of intention with the coefficient correlation

0.61.[92,120] In the parent population, attitude proofed as the highest predictor of intention with OR= 2.38.[105] Contrarily, attitude was not found as a significant predictor of the intention in some college male student.[111]

Subjective norm

A considerable significant person to comply, such as important people, sexual partners, husbands/ steady partners, parents, health care providers (doctor), spiritual leaders and other women were significantly predicting the intention among college women, for about 0.31 - 0.57.[36,37,39,40] In a college men population, subjective norm was resulting a coefficient correlation of 0.41-0.42 and significantly associated with the intention.[95,111] In both women and male college student, subjective norm plays the most important role to predict the intention.[36,94]

A research in among girls, they categorise the social referents as father, mother, best friend, general practitioner, doctor/ nurse from the municipal health service and the Ministry of Public Health.[96] The social referents mentioned were significantly associated with the intention.[96] Among mothers, subjective norm also significantly predict for about 0.16-0.37 toward the intention.[92,120] Among parent, the significant people whose influence the intention could be physicians, public or community health nurse, friend or family, children's teachers or principal and mass communication.[105] The significant people mentioned has a strong and significant association with the intention, OR=45.37.[105]

Perceived behavioral control

A research among college women the predicting value of perceived behavioral control has remain low at 0.08 and accounted to be the lowest intention predictor compare to the other two.[40] Surprisingly, studies in young women and mother

found that PBC did not emerge significant role of the intention.[36,92] The PBC only can predict for 0.01 the intention to vaccinate.[36] Congruent with another result, behavioral control of the perspective of the decision of HPV vaccine was beyond their control and not predict the intention.[39] Comparing the vaccinated group and intend to be vaccinated, the behavioral control was indifferent with OR of 0.99.[39] Two studies among college men also found no significant association of perceived behavioral control and the behavioral intention.[95,107] Different from other study mentioned, one study on college male and parents found that perceived behavioral control significantly accounted for 0,18 coefficient variance on the intention and OR=13.06, respectively.[105,111]

Intention

The predictive value of the TPB with the addition of the knowledge factor for college women's intention to obtain HPV vaccine was about 0.66.[60] Among young women, the predictive value of the TPB was 0.52.[36] On the college men population, the intention variance that resulted from two TPB construct, i.e. attitude getting vaccinated and subjective norm as well as one indirect predictor was 0.58.[95] Three construct of TPB accounted for 39% of the variance in the intention of male college student. [111] Among the research that applying TPB, mother whose having daughter shown the highest predictive value of intention (0.796).[120]

Application of Theory Planned Behavior

Since its introduction three dozen years ago, TPB has become one of the most frequently cited and influential model for predicting human social behavior.[121] By the year of 2010, as many as 4550 has been citing the theory and having the highest impact score among US and Canadian social psychologist.[121] Well-design measure of

each construct mostly resulted in a correlation with the coefficients of about 0.60.[121] In the health domain, TPB has been used in numerous studies in order to predict the health behavior, such as exercise, birth control behavior, condom use and HPV vaccine uptake.[43] Comparison between the TPB and HBM suggest that the TPB is a better predictor of intentions (0.52) than the HBM (0.43) when it was studied together to understand the variance in intentions.[36] Another research comparing HBM and TPB on the ability to predict HPV vaccine uptake found that TPB was consistently outperformed the HBM.[44]

Moreover, the behavioral theory factors' changes can create a health prevention.[40] Hardeman et al on 2001[122] was investigating the TPB application in behavior change interventions by conducting a systematic review of 30 articles. It was found that two third of the intervention applying TPB was positively changed the behavior with a wide range of size effect, from small to large.[122] Case in point among the health area is research of the abstinence and safer sex HIV risk-reduction interventions for African American adolescent.[123] This research was found that an intervention design based on the TPB reduces the HIV sexual risk behavior.[123] The TPB has been widely used in various populations including the college population.[43] Among college women, assessing the intention on health behaviors, such as walking behavior, excessive alcohol use and healthy sleep using TPB was widely understood. This thesis was mainly guided by the TPB with additional theoretical factors. By using the theoretical approach, finding from this study become the basic information for future intervention based on the TPB and other theoretic factors. In the future, creating an intervention to increase the intention and uptake is the researcher's goal.

Summary of the Literature Review

Extensive review of the literature was identified the current understanding of HPV vaccination among female, young adult and college student. Knowledge regarding the intention to obtain HPV vaccine was explained through several concepts from the previous research conducted in some countries. Furthermore, a theory related to intention, such as TPB from Ajzen[32], outperformed some health behavior theory and explained a basic theory and the concept to develop new understanding, which focuses on measuring attitude toward vaccinated against HPV, subjective norm and perceived behavioral control. The significant predictors from other behavioral theory were considered and reviewed. Existing tools to measure intention and the predictors were also discussed. Finally, this part examined two existing studies of intention in Thai college women. The literature review showed that there was no instrument that fully accommodate all the factors that might predict the intention to obtain vaccination among non-health related college women that would fit with the Thailand context, especially in the Southern part. Other than that, literature also showed a limited understanding of the factors that affect intention to obtain vaccination in non-health related college women in Southern part of Thailand.

CHAPTER 3

RESEARCH METHODOLOGY

This chapter describes the research methodology to examine the level of intention to obtain HPV vaccination and its predictors among Thai college women.

Research Design

A cross sectional study employed self-completed questionnaires to identify factors associated with intention to obtain HPV vaccine among college-aged women. The study theoretical framework is the TPB with additional theoretical factors from a literature review of intention to obtain HPV and interview from twelve selected participants from health-related and non-health-related area in PSU-Hat Yai.

Variables

The study variables consisted of predictors variables and outcome variable. The expected predictor variables in this study was attitude to obtain HPV vaccine, subjective norm, perceived behavioral control to obtain the HPV vaccination, perceived susceptibility of not obtaining HPV vaccination, perceived of vaccine effectiveness, cost of HPV vaccination and knowledge of HPV and cervical cancer. While, the outcome variable in this research was intention to obtain HPV vaccine.

Research Settings

Participants were the student from Prince of Songkhla University Hat Yai (PSU-Hat Yai) and Songkhla Rajabath University (SKRU), where the student body is diverse in the Southern Thailand region. According to the Registrar's Division, Prince of Songkla University, Hat Yai Campus (2018), there are 1,670 female undergraduates on three non-health-related faculties. Additionally, based on the data available from the Registrar's Division, Songkhla Rajabhat University in 2018 there are 6,599 female students from seven non-health-related faculties.

Population and Sample

Population

The study's target population was female around the ages of 18 to 26 years and enroll in the undergraduate programs of Prince of Songkhla University Hat Yai (PSU-Hat Yai) and Songkhla Rajabath University. This age span was chosen due to the portrayal conventional age range for undergraduate students in Thailand. The upper limit of the age range also adjusted with the age limit to accept the HPV vaccine.

Sample

The participants were recruited from 10 non-health-related faculties in two universities, including 3 faculties in PSU-Hat Yai and 7 faculties in the Songkhla Rajabath University (Table 2). The inclusion criteria for the study are undergraduate

students in non-health-related faculty aged 18-26 years from PSU-Hat Yai and Songkhla Rajabath University, whose not ever received any HPV vaccine previously.

Table 2 *The total faculties in two universities selected*

No.	Universities	Faculties
1.	Prince of Songkla University, Hat Yai Campus	Faculty of Liberal Arts
		Faculty of Law
		Faculty of Economics
2.	Songkhla Rajabath University	Faculty of Education
		Faculty of Agricultural Technology
		Faculty of Humanities and Social Science
		Faculty of Management Science
		Faculty of Science and Technology exclude Health Science Program
		Faculty of Fine Arts
		Faculty of Industrial Technology

Sample size

The estimation of the sample size in the two-tailed test was depended on the following parameter: power of 0.95, medium effect size (0.35) and the significance level or α of 0.05. R^2 value linked with one independent variable is varied, range from 0.35 to 0.7.[36,37,39,40,44,92,95,96,98,107,111,120] Seventy subjects are required for multiple linear regression (in the settings of seven predictors) based on G*Power calculation, computer program for priori power analysis. In other hand, a hundred subjects are required for the Pearson's correlation based on G*Power calculation. Prior to the multiple regression analysis, the normality of the data should be checked. Consequently, this research was required a minimum participant of 179 people. It is estimated that the attrition rate over the research period is 50% by considering the response rate, missed

and failed to observe the testing items. Thus, a minimum number of 269 potential participants were approached.

Sampling technique

Sampling technique used in this study was nonprobability sampling. Using the purposive sampling the participants was selected according to the inclusion criteria. The distribution of the participants recruited in each faculty is presented in Table 3. The calculation is based on a the following formula:

$$n_1 = \frac{N_1}{N\ total} \times n$$

n_1 = minimum sample from each faculty

n_2 = 20% addition on the questionnaire distribution

N_1 = population each faculty

$N\ total$ = total population of non-medical faculties (8,269)

n = minimum sample (269)

Table 3 *Number of subjects from each faculty and university*

No.	Faculty	N_1	n_1	n_2
	PSU-Hat Yai			
1.	Liberal Arts	826	26	31*
2.	Law	543	17	20
3.	Economics	301	9	11
	Songkhla Rajabath University			
4.	Education	928	29	35
5.	Agricultural Technology	359	11	13
6.	Humanities and Social Science	1,506	47	56
7.	Management Science	2,230	69	83*
8.	Science and Technology exclude Health Science Program	1,018	32	38

Table 3 (continued)

No.	Faculty	N_1	n_1	n_2
9.	Fine Arts	296	9	11
10.	Industrial Technology	262	8	10
	Total	8,269	269	308

Note. *the number of participants on the Faculty of Liberal Art, PSU-Hat Yai and Faculty of Management Science, SKRU were added for 30 and 40 respectively, due to the low response rate. Thus, the questionnaires were distributed to 378 participants.

Institutional Review Board (IRB) consideration

This research involved human as the participants. Thus, this research was submitted and approved by the Social and Behavioral Institutional Review Board Submission (SBS-IRB), Faculty of Nursing, Prince of Songkla University, research permission from Songkhla Rajabhat University was also obtained (Appendix 1).

Data collection procedure

Institutional Review Board authorization is earned for this study. A request to involve in the investigation is announced through the secretariat of each faculty. The eligible participants, i.e. women aged 18-26 years old who never obtain HPV vaccine were asked to gather in the arranged place, date and time. The detail of the research procedure is mentioned below:

1) First of all, the researcher met the staff from each faculty and explained the details of the study purpose as well as the permission for data collection. The researcher then asked the staff to identify the student who met the inclusion criteria

and arranging the date, time and place. Researcher or research assistant explained about the purpose of this study.

2) The student was given a subject information explaining about any potential risks of the study, the discomfort that may appear and the right to refuse to participate or terminate the consent to participate at any time without any punishment, as well as other relevant aspects of this research. If student agreed to participate, the researcher gave an informed consent form them to sign, then the researcher or research assistant handed out the questionnaire sheet.

3) The participants were given 30 to 45 minutes for answering the questions. At the end of the procedure, researcher or research assistant checked all the completeness of the answer and gave the closing statement. In order to fulfill the highest standards of ethical principles, all the subjects' privacy is protected and kept the personal information confidential by keeping the questionnaire sheet anonymous. Every response item on the questionnaire was entered as a numbered code format data.

Instrumentation

The development of the instrument in this study started by conducted an interview to find the additional variables in the conceptual framework, followed by adaptation and modification of instrument from the previous research, translation of the instrument into Thai language, think-aloud procedure for the cognitive validity, content validity and reliability test. The detail of the instrument development process are explained below:

Interview

This step was aimed to explore the perceptions on receiving an HPV vaccine of Thai college women. Face to face interview using the English language with open-ended questions in college-aged women, i.e 18 to 26 years old with non health-related and health-related background who understand and speak English regardless the HPV vaccination status were conducted. Participants were recruited from Prince of Songkla University in December 2017 – January 2018 via personal contact. The interviewer asked for their willingness to participate. After that, the existing participants recommended next potential participants among their acquaintances. Next, the interviewer contacted eligible individuals and explained the study's detail as well as the schedule for the interview. As there was still a possibility of the language barrier, the researcher prepared a translator to facilitate the discussion if the participant requested. Consent was obtained from each participant before conducting interviews.

The informed consent and questions used for interview is attached to Appendix 3. A total of 12 face to face interviews were conducted. Each of the interview sessions includes three components: 1) unrecorded introductions from the interviewer, 2) administration of the consent and 3) interview. Interviews ranged from 23 to 50 minutes with an average of 34 minutes and were digitally audio-recorded and transcribed verbatim. The researcher used the thematic analysis to decide the most relevant themes. First, verbatim transcripts from twelve recorded interviews were read carefully line by line. After that, patterns within the data were identified and coded. The patterns could be about concepts and repeated opinion surprised the researcher and explicitly stated by the participants that it was important for them. Next, the code was grouped and created themes for each group, which was broad in term of types. The

themes could be about object, process or differences. Eight themes came up in this interview, each theme explained the factors influencing the intention to obtain HPV vaccination. The model of the vaccination decision-making mind mapping is presented in Figure 3. The seven remaining themes were similar and congruent with the variables which had been found in literature review and the TPB. Thus, knowledge of HPV and cervical cancer has remained interesting to explore and included in the questionnaire. The detail on each theme is given as follows:

Lack of knowledge about HPV vaccine and cervical cancer

Lack of knowledge about cervical cancer and HPV vaccine refers to the unfamiliarity with the term of cervical cancer, limited knowledge of HPV and cervical cancer vaccine as well as the vagueness about the HPV transmission route. Six health-related participants have knowledge of cervical cancer. Five female in non-health-related major were interviewed, all but one participant have none of cervical cancer's knowledge. One participant had ever heard about cervix before, but could not remember about cervical cancer: "She [my mom] told me what it is but I can't remember about it" W7.

The second code was related to the limited knowledge about HPV and HPV vaccine. Three out of seven college women with health-related major have limited knowledge of HPV and HPV vaccine that sometimes incorrect. For example, one participant stated: "HPV is a virus and they have a vaccine. Just that, the schedule I am not sure... [may be] four times. I don't know about vaccine types available in Thailand" W2. All participants from non-health-related major only know that HPV protects from cancer and there is a participant that misunderstood between HPV and HIV, stated: "Is HPV like HIV? W7.

Third, participants stated a broad range of the way of transmission of the HPV, such as using public toilets, personal hygiene and skin to skin contact. Two out of seven participants from health-related major could explain accurately about the method of transmission of the virus. Among five non-health-related participants, only one that could explain about the way of transmission.

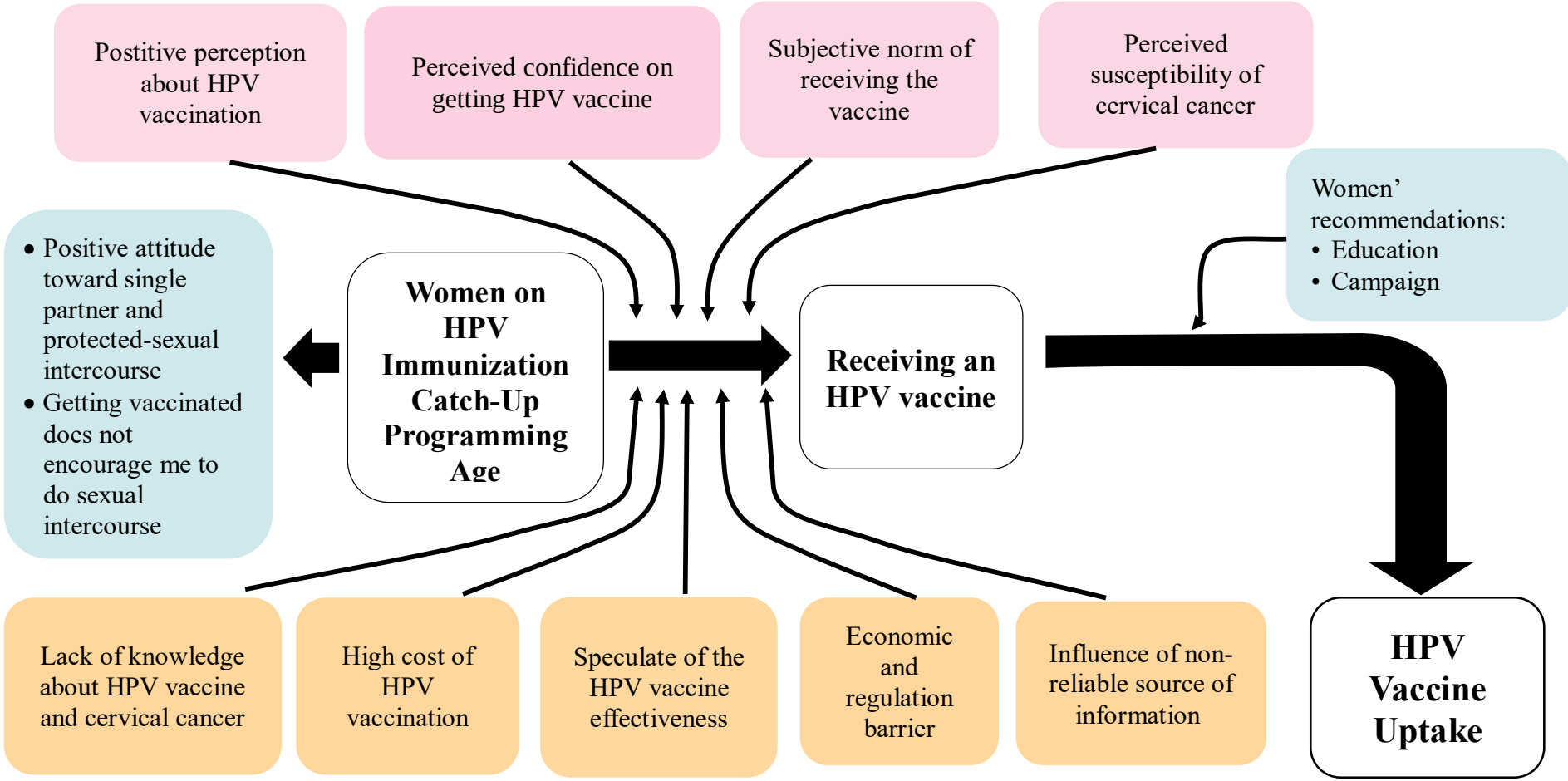

Figure 3 Women' Vaccination Decision-Making. A model illustrating the factors that associate with the intention to obtain HPV vaccine among college women. Various factors influence the pathway, as deduced from themes identified in this interview

Attitude toward sexual intercourse

Attitude toward sexual intercourse refers to women's perceptions being vaccinated will not encourage her to have sexual intercourse and their positive attitude about having a single partner and engaging protected-sexual intercourse. Four out of seven health-related college women recognized that the desire of doing sexual intercourse should not be define by the HPV vaccination status. However, only one participant from non-health-related major realized about it. In fact, one of the participant stated: "Sexual intercourse I think it isn't related to vaccination, I think [sexual intercourse] just...nature [of human]" W2. Additionally, three out of five participants from non-health related background stated that vaccine encourages her to have sexual intercourse. Surprisingly, one participant from health-related background narrated: "After I vaccinate, it encourages me to have protected sexual intercourse" W9.

The second findings focused on women' positive attitude toward single partner and protected sexual intercourse. Eight over twelve participants, i.e. five health-related and three non-health related, mentioned similar opinion. Generally, they stated that is fine to have sex with a single sexual partner and using condom as protection. "I am okay to have protected sexual activity. I am comfortable to have only one sexual partner" W9.

Positive perception of HPV vaccination

Positive perception about HPV vaccination refers to women's positive perception of HPV vaccine in general aspect. Positive awareness about HPV vaccination was the most frequently cited themes which eleven participants mentioned about it, except one participant from the health-related background. Several participants stated: "I haven't heard any negative [of HPV vaccination] yet...or is there any

[negative things about HPV vaccine]?" W5. "The information [of HPV vaccine] is exactly positive, because nowadays many people have cervical cancer, HPV infection is the only cause of cervical cancer. So, when everybody has HPV vaccine, so, it can prevent cervical cancer in the future" W8.

Perceived confidence on getting the HPV vaccine

Perceived confidence on getting the HPV vaccine refers to the perception of the women in their own ability and their confidence on getting the HPV vaccine. Two codes were identified in this theme. First, participants were own high self-encouragement to get the vaccine. Five out of seven health-related participants and three out of five non-health-related participants trust themselves that they had enough understanding as the basic knowledge to make a decision to obtain the HPV vaccination. "I don't think I need someone to support me when I get the vaccine. It is fine, even for the pain or...I want it by myself" W5. Five women, i.e. two health-related participants and three non-health-related participants stated that other person's opinion won't discourage them to obtain HPV vaccine.

Second, participants expressed that they are not shy to obtain and/ or discuss about the HPV vaccine, some participants stated: "This is not embarrassing [obtaining the HPV vaccine]. It's just common like I have a dinner" W6. "I am not feeling embarrassed or shy to take this and feel completely comfortable talking about it and doing that [obtaining the HPV vaccine]. I think it is actually common to you to do that kind of stuff" W3. Additionally, nine participants, i.e. five health-related participants and four non-health-related participants stating that everyone wants to protect themselves from something bad and obtaining the HPV vaccine was just a common thing.

Subjective norm of receiving the vaccine

Subjective norm of receiving the vaccine refers to the approval of their parents' as the most considerable significant people who are able to influence them to receive the HPV vaccination. For example, one woman expressed that her mother will support her if she wanted to obtain the vaccine, but her mother never pushes her to do something. Some participants stated: "... my mother is going to cheer me up..." W2. "My parents [would support me to obtain HPV vaccine]..." W1. "My father and my mother [will support me to obtain HPV]" W4. Overall, eight participants, i.e. five health-related participants and three non-health-related participants stated their parents would allow their daughter vaccinated.

Perceived susceptibility of cervical cancer

Perceived susceptibility of cervical cancer refers to the participants' understanding of their chances of developing cervical cancer or infected by HPV and the concern on the consequences of cervical cancer. The first code was related to the concern about cervical cancer consequences. Seven participants out of twelve participants, i.e. four health-related participants and three non-health related participants were having a concern about the side effect of the cervical cancer which might more severe than the side effect of being vaccinated. Additionally, they stated that the vaccination side effect might not appear to every single person. The second code involved women' assessment about how they are at the risks of being infected by the HPV or suffering from cervical cancer. Six participants, i.e. three non-health related participants and three health-related participants deemed themselves as having risk of HPV infection or cervical cancer, with a woman stated: "I have the possibility to get cervical cancer because, it [HPV] can be transmitted by a sexual intercourse" W10.

Unfortunately, half out of all participants feels that they have a low risk of HPV infection or cervical cancer.

Perceived barrier of having an HPV vaccine

Perceived barrier of having an HPV vaccine refers to the analysis of the possible obstacles occur in having an HPV vaccine. Four codes identified relevant to potential barrier of having an HPV vaccine. Almost all, except one of twelve women were concerned about the high cost of HPV vaccination. One girl interviewed narrated: “Well, because at the first time... I heard about the vaccine which is quite expensive” W1. Some of them was stated that the price should be lower. Nine participants, i.e. five health-related participants and four non-health-related participants were willing to obtain HPV vaccination if the vaccine offered for free. Even more, women were not going to consider another thing as they have a trust their government. One of the women was stated: “I think I will [get the HPV vaccine] if it is free. Probably it is not bad since they [government] are providing it. So they already, make sure that the HPV vaccination isn’t dangerous. I trust them” W3. Moreover, they were influenced by the fact that if it is a government program, a lot of people are going to be vaccinated along with them. Thus, they are not going to be afraid to be vaccinated.

Second, nine women, i.e. five health-related participants and four non-health-related participants were speculating about the effectiveness of the HPV vaccine. They mentioned several percentages of the HPV vaccine effectiveness, such as 70% or 80% and some participants' questioned about the effectiveness of the vaccine, stated: “I am not sure right now that this [HPV] vaccine can or cannot prevent from this [cervical] cancer” W12.

Third, the HPV vaccine is not free and mandatory. Six participants, i.e. five health-related participants and one non-health-related participant stated that this vaccine is not given for free among their age. Moreover, one woman were hoping that the policy of free HPV vaccination lunches for women in her age range, she stated: "The policy of the free HPV vaccination had already launched for 12 years old students, [I hope they] give a chance for everyone to get equally protected [from HPV infection]" W11.

The fourth code was related to the influence of non-reliable source of information. All of the women agree of the using of the internet as the source of the information. However, their main source of information was Facebook. Other than that, they were mentioned Wikipedia and Google as the source of their information.

Women' recommendation of how to improve the vaccine uptake

Women' recommendation of how to improve the vaccine uptake refers to strategies considered as an effective way to improve women's uptake of the HPV vaccine in the future, including the media campaign choices and type of information for education. Among twelve participants, seven of them were agreed that engaging more information encourages them to have an HPV vaccination. A woman narrated: "After I heard the information from my sister, the information encourages me to take the vaccine" W6.

One of the women suggested to educate college students about the HPV since freshman year, because it is going to be too late if it is started at senior year. Second, eight women, i.e. three from health-related participants and five from non-health-related participants agreed that social media is the best platform to campaign

about the HPV vaccine. They approved that today's generation spending so much time in a social media, especially Facebook.

Initial instrument in development process

The instrument contained the questions on subject information, informed consent and questionnaire was divided into 11 sections with a totall of 69 questions (Appendix 3). Self-reporting questionnaires were developed to use in this study. There were eleven questionnaire section in total: (1) Demographic information questionnaire, (2) Attitude to obtain HPV vaccination questionnaire, (3) Subjective norm to obtain HPV vaccination questionnaire, (4) Perceived behavioral control to obtain HPV vaccination questionnaire, (5) Perceived susceptibility of not obtaining HPV vaccination questionnaire, (6) perceived of vaccine effectiveness questionnaire, (7) Cost of HPV vaccination questionnaire, (8) Knowledge of HPV and cervical cancer questionnaire, (9) Intention to obtain HPV vaccine questionnaire, (10) Other information to obtain HPV vaccine questionnaire and (11) Sexual health information questionnaire. This questionnaire was developed based on research framework. The detail of each part is given as follows:

Demographic information questionnaire

This first section includes demographic questions which consist of eleven items. Demographic data included are age, religion, family income, pocket money from family, parents' occupation, parents' highest educational background, health insurance status, universal health coverage, university health coverage, marital status and history of smoking. This independent variables were analyzed using descriptive statistics.

Attitude to obtain HPV vaccination questionnaire

Total of six questions modified from a research by Ratanasiripong et al[60] in 2013 was used and measured by 7 item scale of response. This section of questionnaires using six semantic differential scale items with 7 item type scale of response. Good idea/ favorable/ desirable/ beneficial/ useful/ pleasant for me are correspond to positive attitude (scored as 7), while bad idea/ unfavorable/ undesirable/ harmful/ worthless/ unpleasant represented a negative attitude (scored as 1). The range of the total score of attitude to obtain vaccination are 6 to 42, a higher total score reflects a good idea, favorable, high desire, benefit, useful and pleasant feeling to obtain HPV vaccination.

Subjective norm to obtain HPV vaccination questionnaire

Total of six questions with two questions modified from Bennett et al[36] in 2013 and four modified from research by Wang et al[105] in 2015. Participant's agreement scored as 1 for unfavorable question and scored as 7 for favorable questions. The range of total score for subjective norm toward vaccination are 6 to 42, with a higher total score reflects the participants' positive agreement with the statement given.

Perceived behavioral control to obtain HPV vaccination questionnaire

A 6-questions item rated on a 7-point scale was modified from a research by Gainforth et al[37] in 2012. Seven item type scale of response, definitely/ extremely easy/ completely confident/ strongly agree are represented positive understanding (going to be scored as 7), while definitely do not/ extremely difficult/ not at all confident/ strongly disagree/ not at all confident portray the negative understanding and going to be scored as 1. The range of total score is 6 to 42.

Perceived susceptibility of not obtaining HPV vaccination questionnaire

Three questions with 7-point answer scale modified from a research by Gerend and Shepherd[44] in 2014 is going to be used. Answer scale range from almost certain (score as 7) to almost zero (score as 1). The range of total score is 3 to 21, with a higher total score reflects more positive understanding of the chances of suffering from genital HPV, cervical cancer and genital warts anchor if they are not obtaining HPV vaccination.

Perceived of vaccine effectiveness questionnaire

Four questions item modified from a research by Gainforth et al[37] 2012 with the 7 different scale of the agreement as the answer choice. The response are range from strongly agree which scored as 7 until strongly disagree which scored as 1. The range of total score for perceived of vaccine effectiveness is 4 to 28, with a higher total score reflects more agreement in the ability of protection against genital wart, cervical cancer and HPV infection if they are obtaining HPV vaccination.

Cost of HPV vaccination questionnaire

Four questions item, i.e. one question modified from a research by Gerend and Shepherd[44] in 2014, two questions modified from Donadiki et al[48] in 2014 and one modified from Patel et al[26] in 2012 was used. The response is range from strongly agree scored as 1 and strongly disagree which scored as 7. The range of the total score is 4 to 28, high score reflects the positive perception toward the economic obstacles that prevent them from obtaining HPV vaccination.

Knowledge of HPV and cervical cancer questionnaire

Fifteen questions adapted from a research of Juntasopeepun et al[24] in 2012. The true responses are scored as 1 and false scored as 0 for all favorable questions, vice versa. "Don't know" responses are scored as 0. The range of total score for knowledge is 0 to 15, with the higher total score reflects the greater knowledge.

Intention to obtain HPV vaccine questionnaire

This construct was assessed with three 7-point semantic differential rating scale items modified from Ratanasiripong et al[60] in 2013. Participants were asked about how strongly agree (score as 7) or strongly disagree (score as 1) about the statements available. Strongly agree is a representation of positive intention to obtain the vaccine. The range for intention is 2 to 14 with a higher total score reflects the positive plan, willingness or the expectation to obtain HPV vaccination in the future. The researcher based the cut off of the interpretation of the low and high intention on the median.

Other information to obtain HPV vaccine questionnaire

This construct contain of three questions, including the media and persons that suitable to inform about vaccination as well as one open ended questions of their suggestions to promote the HPV vaccine. This construct is going to analyzed using descriptive statistics.

Sexual health information questionnaire

The sexual health information questionnaire consists of 8 questions. Based on the literature review: sexual orientation, history of sexual intercourse, age of first sexual intercourse, condom use, PAP test experience, family history of gynecological tumors, history of sexually transmitted infection and a history of cervical

cancer are the indirect factors towards the intention for HPV vaccination. This construct is going to analyzed using descriptive statistics.

Translation of the instrument

Originally the instrument were developed in English language. This study was conducted in Thailand, thus the instruments needed to be translated to produce a Thailand version that conceptually comparable with English language, yet equivalent with the Thai culture before the validation process. The translation process based on the WHO article titled process of translation and adaptation of instruments, including three steps: (1) Forward translation, (2) Backward translation, (3) Comparison of original and backward version.[124]

Forward translation

Researcher engages one assistant professor in the division of Adult and Elderly, Faculty of Nursing. She is knowledgeable of the English-speaking culture and her mother tongue is Thai language. She translated the instrument from English to Thai language, including a questionnaire sheet, subject information form and inform consent. The main point of this process was to give the translator an instruction to emphasize the conceptual more than literal translations. The result of the forward translation is presented in Appendix 4.

Backward translation

Using the approach used in the first step, the instrument was then translated back to English by one lecturer of Social and Administrative Pharmacy, Faculty of Pharmaceutical Sciences.

Comparison of both English versions

Finally, one assistant professor in the division of Maternal and Newborn, Faculty of Nursing was assigned to identify and resolve inadequate expressions or concepts of the translation as well as any discrepancies between the original instruments and the backward translation result using previously prepared form (Appendix 5). All the questionnaire constructs and instruction was rated as quite relevant and very relevant in the comparison of both original instrument and backward English-translated instrument. However, the expert recommended a fourteen items including 8, 9, 12, 13, 14, 15, 16, 17, 25, 26, 40, 56, 57, 58 needed some changes in the Thai version (Appendix 7).

Validity and reliability examination

All questions to find the factors that influencing the intention to obtain HPV vaccine and to understand the level of intention was inspected for cognitive validity by six college women, content validity by the three experts and reliability by lay people which suited with the inclusion criteria in the real study.

Validity

The validity conducted in this study was cognitive validity and content validity. The details of each validity process are explained as follows:

Cognitive validity

A procedure called think-aloud technique was assigned to explore the scope and nature of problems or issues that people encounter in completing the questionnaires, furthermore to examine whether or not people responding as intended of the instructions. The think-aloud procedure was conducted at the Faculty

of Pharmaceutical Science, occupied one room for two participants on each time. Two research assistants were giving an instruction to participants in Thai language to articulate all of their thoughts as they answer the questions. The participants were instructed to read the detail of the direction prior the think-aloud (Appendix 8). Participants were not interrupted during the think-aloud, unless they remain silent for 10 seconds. In order to the best practice, three warm up questions by Dany et al[125] was assigned prior the real instrument given (Appendix 8).

The voice recording of the think-aloud procedures from six participants was transcribed verbatim. Transcripts was separated into verbalization relating to each of the 69 questions. First, each research assistant coded the transcripts according to whether any difficulties were articulated with the questions. Second, the code was checked to find the different of coding between two research assistants. As the result, 85 disagreement among two research assistants were found at an end of the process. The disagreement were discussed and adjusted. For all six participants, there were 414 segments in total, reconciliation was above than 79 percent. The breakdown of coding was following the recommendation from French et al[126] and McCorry et al[127]. The frequency of problem in each code is presented in the Table 4.

Table 4 *The frequency with which each type of problem is coded*

	Problem	Frequency
1.	Re-read, mis-read or significantly flounder in answering question	77
2.	Questioned sensibleness of question	13
3.	Answer is suitable with the questions or give inconsistent reasoning	11
4.	Question deemed not applicable to their circumstances	9
5.	Problems with the answer choice or scale	4

All participants experienced an overall 114 problems with the 69 total questions. Thus the participants face 19 problems in average with the estimate of the problems arises per person ranged from 12 to 29. The four most problematic questions item were item number 12, 36, 56 and 65. Twenty two questions were found to be completely not problematic, i.e. 1-6, 10, 11, 15, 16, 19, 20, 24, 45, 47, 57-59, 62, 63, 68 and 69. Cost, perceived of vaccine effectiveness and attitude were top three of the most problematic constructs. The number of the problems arise in each construct is presented in the Table 5.

Table 5 *Average number of problems arise within the predictor of intention and intention measure*

Construct	N	Number of questionnaire items	Total number of problems	Mean problems/ person/ item
Demographic information	6	11	3	0.045
Attitude	6	6	13	0.360
Subjective norm to obtain HPV vaccination	6	6	8	0.220
Perceived behavioral control to obtain HPV vaccination	6	6	9	0.250
Perceived susceptibility of not obtaining HPV vaccination	6	3	6	0.330
Perceived of vaccine effectiveness	6	4	11	0.460
Cost of HPV vaccination	6	4	15	0.630
Knowledge of HPV and cervical cancer	6	15	29	0.320
Intention to obtain HPV vaccine	6	3	5	0.280
Sexual health information	6	8	15	0.310

Following the coding process, any types of the problems, including structural, cognitive and potential structural or cognitive issues were detected in all the participants' script. The revisions on the typographical error, arrangement on the structure or flow improvement of the question and adjustment of the questionnaire layout as well as improvement in Thai language literal equivalence. The examples of the issues along with the refinements are shown in the Table 6.

Table 6 *Example issues and remedies during think-aloud revision*

Construct	Item no.	Example issue identified by participant	Phrase before	Phrase after
Attitude to obtain HPV vaccination	12	Wording choice and potential for incorrect assumption [C/S]	การได้รับวัคซีน ป้องกันมะเร็งปากมดลูกของนันน่าจะ...	ฉันคิดว่าการได้รับวัคซีนป้องกันมะเร็งปากมดลูก เป็น ...
Perceived of vaccine effectiveness	36	Wording choice and potential for incorrect assumption [C/S]	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะมีประสิทธิภาพมากที่สุดในการปกป้องฉันต่อต้านเชื้อเอชพีวี	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะมีประสิทธิภาพมากที่สุดในการปกป้องฉันจากเชื้อเอชพีวี
Sexual health information	65	Irrelevant with their situation [S]	คุณมีการป้องกัน (เช่นใช้ถุงยางอนามัย) ระหว่างมีเพศสัมพันธ์ หรือไม่ [๑] มี [๒] ไม่มี	คุณเคยมีเพศสัมพันธ์หรือไม่ [๑]เคย[๒]ไม่เคย ถ้าคุณตอบใช่บนคำถามข้างบนกรุณาตอบต่อดังต่อไปนี้ คำถาม: คุณมีการป้องกัน (เช่น ใช้ถุงยางอนามัย) ระหว่างมีเพศสัมพันธ์ หรือไม่ [๑]มี[๒]ไม่มี

Overall, 28 problematic items were revised in this step (Appendix 9). Finally, two questions of HPV and HPV vaccine awareness were added as the solutions of the cognitive problem appear in the think-aloud process. This questionnaire was designed based on the principal of the TPB which states that PBC may not be realistic when a person has relatively little information about the behavior. The HPV and HPV vaccine awareness questionnaire consist of two items, each item was rated using binary variables: Yes = 0 and No =1. The scores range from 0 to 2. Participants with score two indicate an awareness about HPV and HPV vaccine. This stage was resulted in 71 questions with 12 constructs. The instrument that resulted from the think-aloud procedure, then proceed to the content validation process.

Content validity

This part of study aimed to explore the extent or the degree of the representation of the construct by the questions prepared. Three experts assigned were one assistant professor in the Clinical Pharmacy Department from PSU-Hat Yai, an associate professor with expertise on instrument development from the Faculty of Nursing of PSU-Hat Yai and an obstetrician from the Songkhlanakarind Hospital, Songkhla, Thailand. The package of (1) conceptual framework, (2) Thailand language version of the questionnaire and (3) an assessment form to rate the item on relevancy, redundancy and clarity as well as three open-ended questions (Appendix 9) were given to all experts. The open-ended questions of additional questions asked the experts to recommend the inclusion or deletion of construct and additional suggestions.

Both content validity of individual items (I-CVI) and overall scale (S-CVI) were measured. The CVI of 1 was used as the final end point, this decision based on the standard set by Polit et al[128] as the acceptable CVI value. The

CVI was calculated after all the modifications suggested by the experts. The result of the content validity indexes for I-CVI and S-CVI of all the constructs of the questionnaire was 1.0. The suggestions by the experts including, rewording for several items and deletion of one item in the intention and perceived behavioral construct. The item number one on the perceived behavioral construct, i.e. “I believe that I have the ability to obtain HPV vaccination” is redundant with “I am confident that I have the ability to obtain HPV vaccination”. Item number one of the intention’s construct need to be deleted because of the redundancy of the term of “willing” and “intend” in Thai language. A question on sexual health construct particularly on the history of birth control pill was suggested to be added by one expert. One expert suggest to change the term of HPV vaccine into vaccine or cervical cancer vaccine to be more understandable for the college women. The same expert also suggested to change the statement format of the questions into direct statement, i.e. from “My obtaining an HPV vaccine would be…” to be “My obtaining a vaccine would be a good idea”, following by change the answer scale of the attitude to obtain HPV vacination, perceive behavioral control to obtain HPV vacination and perceive susceptibility of not obtaining HPV vaccination into 7 item scale of agreement. Strongly agree response was scored as 7 while strongly disagree scored as 1 for favorable question, vice versa. An adjustment of the answer layout also recommended. However, the final items on the construct of cost more represent on the perception of cost as the barrier to get vaccinated than the perception of the cost of HPV vaccine itself. All of the statement on the cost construct was arranged in this following format: “I do not get vaccinate because…”. For instance, one of the statement is “I do not get vaccinate because I do not have money for vaccination”. Finally, this step resulted 70 questions item.

Reliability

Pilot testing of the instrument was conducted to identify time needed to complete the questionnaires, to test the internal consistency reliability by calculating the Cronbach's coefficient alpha. The Thai version of the questionnaire was pilot-tested among forty five college women from the Faculty of Management Science in PSU-Hat Yai with the same inclusion criteria as the population in the actual data collection. The researcher went to the Faculty of Management Science and asked for permission from the faculty's secretary office to recruit participants. The researcher was introduced to a lecturer within the faculty. The researcher was explaining the detail of the research and participants requirement procedure as well as appoint one of the class schedule for data collection. A total of 45 questionnaires were spread. However, 40 questionnaires were handed back. Ten participants were excluded because of failing to complete the answer even the researcher sent a follow-up though message service, instant messaging or email in order to complete the answer.

Completing this questionnaire required 7 to 15 minutes, with an average time of 11 minutes (*SD* = 3). The participants who completed the questionnaire consisted of 30 unvaccinated and non-health-related college women from Public Administration Major, Faculty of Management Science, Prince of Songkla University. Twenty nine participants (96.67%) were 19-20 years old. The majority of the participants (76.67%) were Buddhist and the rest were Muslim. Of the college women, 10 had a range of monthly family income of 20,000-29,999 THB (33.33%) and 26.67% college women monthly family income ranged from 15,000 to 19,999 THB. The majority of college women (86.67%) had an income from family less than 6,300 THB. Ten out of thirty participants' father were a farmer or fisherman (33.33%) and eight out

of thirty participants'' mother were also farmer or fisherman (26.67%). Seventeen participants' father (56.67%) were graduated from senior high school and nineteen participants' mother (63.33%) were graduated from senior high school. The majority of the college women was protected by universal (83.33%) and university health coverage (86.67%). However, only sixteen (53.33%) participants covered by other health insurance.

Most of the participants were single (93.33%) and never been smoking before (96.67%). All of the participants never experienced a PAP smear. Twenty eight out of thirty (93.33%) participants' family did not have a history of gynecology tumor and 100% no family history of cervical cancer. The majority of the college women were heterosexual (83.33%); 10% bisexual and 3.33% homosexual. Most of the participants (93.33%) did not have any sexual experience. Among two participants who had ever been engaged in sexual activity, all of them had a history of condom use and had never infected by STIs. The age of the first sexual intercourse was 19 and 20 years old. One participant had a history of birth control pills use. Other descriptive characteristics of demographic and sexual health information are presented in Appendix 11.

Cronbach's coefficient alpha was calculated for each sub-scale of the questionnaire. The Cronbach's coefficient alpha of 0.700 is the lower limit of the acceptable end point with the inter-item correlation no lower than 0.200 in all pairs of items.[129,130] The reliability of knowledge of HPV and cervical cancer was calculated using Kuder-Richardson 20 (KR 20) because the answer choices were in binary variable (scored as 0 and 1). The final result of the reliability is presented in Table 7.

Table 7 *The final Cronbach's coefficient alpha and number of items in each construct*

Construct	Number of questionnaire items	Cronbach's coefficient alpha
Attitude to obtain HPV vaccination	6	0.930
Subjective norm to obtain HPV vaccination	6	0.866
Perceived behavioral control to obtain HPV vaccination	4	0.894
Perceived susceptibility of not obtaining HPV vaccination	3	0.921
Perceived of vaccine effectiveness	4	0.912
Cost of HPV vaccination	4	0.877
Knowledge of HPV and cervical cancer	9	0.714*

Note. *reliability test for questionnaire with dichotomous choices conducted using Kuder-Richardson 20 (KR-20)

The final attitude to obtain HPV vaccine, subjective norm to obtain HPV vaccine, perceived susceptibility of not obtaining HPV vaccination, perceived of vaccine effectiveness and cost of HPV vaccination items continue as it was. However, for the perceived behavioral to obtain HPV vaccine construct, initially, Cronbach's coefficient alpha for five items was 0.794. After deleting item number one which has an inter-item correlation lower than 0.20, the final Cronbach's correlation became 0.894. Finally, four perceived behavioral control to obtain HPV vaccine items were used to conduct the study. In the construct of knowledge of HPV and cervical cancer, one question was not able to answer correctly by all participants. Thus, the question of "Cervical cancer symptoms commonly present with vaginal discharge or bleeding, even in the early stages of disease" was deleted. Initially, Cronbach's coefficient alpha for fourteen items of knowledge of HPV and cervical cancer questions was 0.641. Deletion of item number 11, 5, 6, 12, 2 and 1 were made and resulting in 0.714 as the final

Cronbach's alpha correlation of nine knowledge. The detail of the result of the reliability testing is presented in Appendix 12.

Final instrument

The final questionnaire set comprising a total of twelve construct and 63 questions (Appendix 13). The details of the number of items in each construct is available in Table 8.

Table 8 *The detail of the number of items of the final instrument and scoring*

No	Construct	Number of items
1.	Demographic information	11
2.	HPV and HPV vaccine awareness	2
3.	Sexual health information	9
4.	Attitude to obtain HPV vaccination	6
5.	Subjective norm to obtain HPV vaccination	6
6.	Perceived behavioral control to obtain HPV vaccination	4
7.	Perceived susceptibility of not obtaining HPV vaccination	3
8.	Perceived of vaccine effectiveness	4
9.	Cost of HPV vaccination	4
10.	Knowledge of HPV and cervical cancer	9
11.	Intention to obtain HPV vaccine	2
12.	Other information to obtain HPV vaccine	3

Data analysis

Data were analyzed using a computer program. Prior to the data analysis, the data was screened and cleaned. Descriptive statistics were applied to demographic data and all of the variable of interest. To answer the research questions regarding the

predictor variables for the intention for HPV vaccination, inferential statistic analyses was conducted. The steps of the data analysis were detailed as follows:

1. Data screening and cleaning: all the answer were screened for any incompleteness and coded.

2. In order to understand the level of intention to obtain HPV vaccination among participants, the class interval and mean based splitting was applied to the data. To compare women characteristic between the one who had a low level and high level intention several test were conducted:

2.1 Independent sample T-test for normal data and Mann- Whitney U for non-normal data were conducted when data have one interval dependent variable and one independent variable with two levels.

2.2 For data with one categorical dependent variable and independent variable with two levels, Chi-square test was employed. Fisher's Exact Test particularly used when there were less than five expected frequencies in each cell of the fourfold contingency table.

3. Pearson's correlation and point biserial correlation coefficients were explored to determine the significant predictor variables for the intention for HPV vaccination. Multiple regression analysis was conducted to determine the relative contribution of the predictor variables to the intention to obtain HPV vaccine

CHAPTER 4

RESULTS AND DISCUSSION

The questionnaire was sent to 378 college women in ten non-health-related faculty at PSU-Hat Yai and Songkhla Rajabhat University. From there, 323 (85.450%) return the questionnaire, 64 participants did not sign the inform consent, even though they answered the questionnaire item, two participants did not answer any items on the questionnaire except the demographic questionnaire after they agreed to participate, two participants failed at following the direction to answer the questionnaire and seven participants had missing answers on the crucial item. Hence, there were 248 participants that qualified for the inclusion in the study. Of the 248 participants, 36 participants reported either ever received an HPV vaccine or uncertain about their vaccination status, 21 preferred not answer the history of HPV vaccine and resulted 191 participants for final analysis.

The result and discussion of the level of intention and predictors for intention to obtain HPV vaccine are presented below:

Results of the study

The findings of this study are presented as follows:

Part I. Participants characteristics

Part II. Description of the variable of interest

Part III. Level of intention to obtain HPV vaccine

Part IV. Predictors of intention to obtain HPV vaccine

Part I. Participants characteristics

Thai college women are presented in this chapter. The reliability of this instrument was recalculated, the result was displayed in Appendix 16. The characteristics of participants are explained into demographics characteristics, family's cancer history and personal sexual history.

Demographic characteristics

Among 191 participants who reported that have not ever vaccinated with HPV vaccine, the mean age was 20.361 years (*SD* = 1.388). Of 181 participants indicating their monthly allowance from family, the mean was 4,7771.271 THB (*SD* = 2,490.036). More than a half of participants (65.445%) were Buddhist. Of 186 participants indicating their family income, 32.258% indicated <15,000 THB, 29.570% indicated 15,000-19,999 THB, 11.290% indicated 30,000-39,999 THB, 10.753% indicated 20,000-29,999 THB, 9.677% indicated >50,000 THB and 6.452% indicated 40,000-49,999 THB.

Of the 183 participants indicating their father occupation, 29.508% indicated as farmer or fisherman, 25.683% indicated as laborer, 16.940% indicated as business owner, 15.847% indicated as governmental employer, 2.186% indicated as company employer and 9.836% indicated other job. Of the 182 participants indicating their mother occupation, 29.121% indicated as housewife, 22.527% indicated as farmer or fisherman, 19.780% indicated as laborer, 9.890% indicated as business owner, 8.791% indicated as governmental employer, 3.297% indicated as company employer and 6.593% indicated other job. Most of the father (42.857%) and mother (52.459%) of the participants graduated from senior high school. More than half of the participants (57.086%) had health insurance, 78.010% of them had universal health coverage and

90.576% of them had university health coverage. Most of the participants in this study (97.906%) did not have history of smoking. Of the 191 participants, 112 (58.639%) had heard about HPV and 151 (79.058%) had heard about HPV vaccine.

Table 9 *Demographic characteristics of the participants*[*]

Demographic Characteristics	n	(%)
Age; *M* = 20.361 (*SD* = 1.388)		
Allowance from family per month (*N* = 181); *M* = 4771.271 **(***SD* = 2490.036)		
Religion		
Buddhist	125	(65.445)
Muslim	65	(34.031)
Protestant	1	(0.524)
Family income per month (*N* = 186)		
<15,000	60	(32.258)
15,000-19,999	55	(29.570)
20,000-29,999	20	(10.753)
30,000-39,999	21	(11.290)
40,000-49,999	12	(6.452)
>50,000	18	(9.677)
Father's occupation (*N* = 183)		
Business owner	31	(16.940)
Governmental employer	29	(15.847)
Company employer	4	(2.186)
Laborer	47	(25.683)
Farmer/ Fisherman	54	(29.508)
Other	18	(9.836)
Mother's occupation (*N* = 182)		
Housewife	53	(29.121)
Business owner	18	(9.890)
Governmental employer	16	(8.791)
Company employer	6	(3.297)
Laborer	36	(19.780)
Farmer/ Fisherman	41	(22.527)
Other	12	(6.593)

Table 9 *(continued)*

Demographic Characteristics	n	(%)
Father's highest educational level (*N* = 182)		
Senior high school	78	(42.857)
Vocational/ technical certificate	37	(20.330)
Bachelor's degree	28	(15.385)
Master's degree	5	(2.747)
Other	34	(18.681)
Mother's highest educational level (*N* = 183)		
Senior high school	96	(52.459)
Vocational/ technical certificate	30	(16.393)
Bachelor's degree	21	(11.475)
Master's degree	4	(2.186)
PhD degree	1	(0.546)
Other	31	(16.940)
Health insurance		
Insured	109	(57.068)
Not insured	82	(42.932)
Universal health coverage		
Insured	149	(78.010)
Not insured	42	(21.990)
University health coverage		
Insured	173	(90.576)
Not insured	18	(9.424)
Smoking history		
Yes	4	(2.094)
No	187	(97.906)
Ever heard of HPV		
Yes	112	(58.639)
No	79	(41.361)
Ever heard of HPV vaccine		
Yes	151	(79.058)
No	40	(20.942)

* The amount of participants (N) varies since the participants accidentally skipped the questions or chose not to answer; M: mean.

Personal sexual history and family's cancer history

Majority of the participants was single (90.576%). Of 190 participants who reported their sexual orientation, 169 participants (88.947%) indicated that they were heterosexual, 5.263% indicated as homosexual, 5.263% indicated as bisexual and 0.526% indicated other sexual orientation. Of 191 participants, only one participant who had ever been screened by PAP smear. Of 191 participants, 18 participants (9.424%) were sexually active and out of these, age at first sexual intercourse ranged from 16 to 21 years (M = 18.888, SD = 1.409), 10 participants (55.556%) ever used birth control pill, 8 participants (38.889%) used condom during the sexual intercourse and none of the participants ever had a STI. Among 191 participants that reported their family's gynecological tumor and cervical cancer history, 5 participants (2.618%) reported to have family history of gynecological tumor and 5 participants (2.618%) reported to have family history of cervical cancer.

Table 10 *Personal sexual history and family history of cancer*[*]

Personal sexual history and family history of cancer	n	(%)
Marital status		
Have partner	18	(9.424)
Single	173	(90.576)
Sexual orientation (N = 190)		
Heterosexual	169	(88.947)
Homosexual	10	(5.263)
Bisexual	10	(5.263)
Other	1	(0.526)
PAP experience		
Yes	1	(0.524)
No	190	(99.476)

Table 10 *(continued)*

Personal sexual history and family history of cancer	n	(%)
Sexual intercourse		
Ever	18	(9.424)
Never	173	(90.576)
Age of first sex (*N* = 18); *M* = 18.888 (*SD* = 1.409)		
Birth control (*N* = 18)		
Yes	10	(55.556)
No	8	(44.444)
Condom use (*N* = 18)		
Yes	7	(38.889)
No	11	(61.111)
History of STI (*N* = 18)		
Yes		0
No	18	(100.000)
Family history of gynecological tumor		
Yes	5	(2.618)
No	186	(97.382)
Family history of cervical cancer		
Yes	5	(2.618)
No	186	(97.382)

M: mean
* The amount of participants (N) varies since the participants accidentally skipped the questions or chose not to answer

Part II. Description of the variable of interest

The range, median, minimum, maximum, mean and standard deviation of the score on each variables are explained in Table 11.

Table 11 *Description of predictor and outcome variables (N= 191)*

Variables	Range	Median	Min	Max	Mean	(SD)
Attitude to obtain HPV vaccination	6-42	37	12	42	35.371	(6.786)
Subjective norm to obtain HPV vaccination	6-42	30	6	42	30.853	(7.890)
Perceived behavioral control to obtain HPV vaccination	4-28	18	5	28	18.633	(5.619)
Perceived susceptibility of not obtaining HPV vaccination	3-21	13	3	21	13.052	(4.824)
Perceived of vaccine effectiveness	4-28	20	8	28	20.649	(5.808)
Cost of HPV vaccination	4-28	16	4	28	15.926	(5.808)
Knowledge of HPV and cervical cancer	0-9	4	0	9	4.267	(1.921)
Intention to obtain HPV vaccine	2-14	10	2	14	10.073	(3.013)

Part III. Level of intention to obtain HPV vaccine

Prior to the analysis, the reliability of this instrument was recalculated, the result was displayed in Appendix 16. To address the aim about the level of intention to obtain HPV vaccine in young Thai college women, splitting into low, moderate and high level of intention was considered. Using the class interval strategy, the intention was divided into three levels. The class width in each level was four, it was calculated by subtract the highest score with the lowest score of intention and then divided by the number of level wanted or three. The low intention range from the lowest score to the lowest score added by four. The moderate intention ranged from upper class boundary on the low level added by 0.01 or called as lower class boundary on moderate level to the lower class boundary on moderate level added by four. The high intention ranged from the upper class boundary on the moderate level added by 0.01 or called as lower class boundary on high level to the lower class boundary on high level added by four. The participants who have a high intention to obtain HPV vaccine was 45% out of 191 participants.

Table 12 *Level of participants' intention to obtain HPV vaccine (N= 191)*

Level of intention	Range	Frequency	Percent
Low intention	2-6	21	11
Moderate intention	6.01-10	84	44
High intention	10.01-14	86	45

Several statistical analysis indicated that the level of intention was significantly associated with monthly allowance from family ($p = 0.027$), religion ($p = 0.049$), father's highest educational level ($p = 0.006$) and awareness of HPV vaccine ($p = 0.033$) (Appendix 17).

Part IV. Predictors for intention to obtain vaccine of HPV

Throughout the diagnostic test of the regression model, Mahalonobis Test indicated eleven multivariate outliers ($\chi^2 > 11.070$, $df = 5$, $p = 0.050$). Cook's distance measure ($D_i \geq 4/n-(k+1)$, $k = 5$, $n = 191$) indicated ten influential cases. Two cases were appearing both in the Mahalanobis Test and Cook's distance, thus 172 observations were used in multiple regression to analyze the significant predictors of intention.

Pearson's correlation coefficient was used to examine the correlation among predictor variables measured in interval scale (attitude to obtain HPV vaccine, subjective norm, perceived behavioral control, perceived susceptibility of not obtaining HPV vaccination, perceived of vaccine effectiveness and cost) with the outcome variable. Point biseral correlation was used to assess the correlation among knowledge with intent to obtain HPV vaccine. Result on 172 participants demonstrated significant correlations of intention and attitude to obtain HPV vaccine ($r = 0.490$, $p < 0.010$), intention and subjective norm ($r = 0.364$, $p < 0.010$), intention and perceived behavioral control ($r = 0.524$, $p < 0.010$), intention and perceived susceptibility of not obtaining HPV vaccination ($r = 0.408$, $p < 0.010$), intention and perceived of vaccine effectiveness ($r = 0.501$, $p < 0.010$).

Table 13 *Pearson's and point biserial correlation (N =172)*

	Variables	2	3	4	5	6	7	8
1.	Attitude to obtain HPV vaccination	0.467**	0.425**	0.231**	0.400**	-0.004	0.200**	0.490**
2.	Subjective norm to obtain HPV vaccination	-	0.351**	0.130	0.243**	0.092	0.129	0.364**
3.	Perceived behavioral control to obtain HPV vaccination		-	0.393**	0.582**	0.022	0.048	0.524**
4.	Perceived susceptibility of not obtaining HPV vaccination			-	0.534**	-0.321**	0.050	0.408**
5.	Perceived of vaccine effectiveness				-	-0.136	0.011	0.501**
6.	Cost of HPV vaccination					-	0.032	-0.012
7	Knowledge of HPV and cervical cancer						-	0.066
8	Intention to obtain HPV vaccine							-

Note: **p< 0.010

The participants who had higher intentions were likely to own a positive attitude to obtain HPV vaccine, increase in subjective norm to obtain HPV vaccination, higher in perceived behavioral control to obtain HPV vaccination, higher in perceived susceptibility of not obtaining HPV vaccination and higher in perceived of vaccine effectiveness. However, cost and knowledge were not significantly correlated with intention. Five variables with bivariate significant correlation with intention were entered as independent variable in multiple regression, details of Pearson's or point biserial correlation coefficient between predictor and outcome variable are presented in Table 13.

The assumption of normality among predictors and outcome variable was checked using Fisher's measures of skewness and kurtosis, the Z-score of attitude was -4.6722, indicated the appearance of high score trend build-up on attitude or negatively skews at $p< 0.001$. Thus, the attitude's score was transformed from interval scale into high and low scale before it was entered into the model. The homoscedasticity assumption was met, ascertained by an absence of a funnel pattern on the scatter plot of standardized residual and standardized predicted value (Appendix 14). Multicollinearity diagnostics indicated that there were no perfect linear relationship between the predictors, all the correlation was less than 0.700, variance inflation factor (VIF) less than 10 and tolerance more than 0.1 (Appendix 15). The independent errors assumption was tested with Durbin-Watson test, the result was 1.797, meaning that the residual was not correlated. As a general rule for the enter method, variables are entered into model simultaneously.

The result indicated that the entire group of predictors, including attitude to obtain HPV vaccine, subjective norm, perceived behavioral control, perceived susceptibility of not obtaining HPV vaccination and perceived of vaccine effectiveness cause R^2 to increase from 0 to 0.423, and the increment in the total of variance provides improvement to an F-ratio of 24.389, which significant at the level of $p< 0.001$. Nevertheless, only attitude to obtain HPV vaccine, perceived behavioral control and perceived susceptibility of not obtaining HPV vaccination significantly strengthen the model, with the attitude to obtain HPV vaccine provided the most contribution to the prediction. Three most significant predictor on the first model significantly predicted intention, F (3,168) = 37.461, $p< 0.001$, $R^2 = 0.401$ in the second model (Table 14).

Table 14 *Multiple regression analysis of predicting the intention to obtain vaccine of HPV (N= 172)*

Variables	B	SEB	β	R^2	Adjusted R^2
Model 1				0.423	0.406
Constant	2.971	0.970			
Perceived behavioral control to obtain HPV vaccination	0.116	0.040	0.225**		
Attitude to obtain HPV vaccination	1.315	0.392	0.240**		
Subjective norm to obtain HPV vaccination	0.043	0.026	0.114		
Perceived of vaccine effectiveness	0.085	0.044	0.158		
Perceived susceptibility of not obtaining HPV vaccination	0.096	0.041	0.165*		
Model 2				0.401	0.390
Constant	4.699	0.662			
Attitude to obtain HPV vaccination	1.695	0.362	0.310***		
Perceived behavioral control to obtain HPV vaccination	0.159	0.036	0.307***		
Perceived susceptibility of not obtaining HPV vaccination	0.125	0.038	0.216**		

Note: ***p<0.05 **p<0.005 *p<0.001

The post hoc power analysis by G*Power program resulted in power (1-β) of 1.000, with the Cohen effect size (f^2) = 0.669 (in the case of three predictors, R^2 = 0.401 and α 0.05). The power of 1.000 means that chance of making a type II error or a false negative is 0. Cohen effect size obtained (0. 669) belong to large size effect based on the Cohen's rules of thumb, means that this regression slope coefficient is likely to be consistent. The predictors of intention to obtain vaccine of HPV are illustrated in Figure 4.

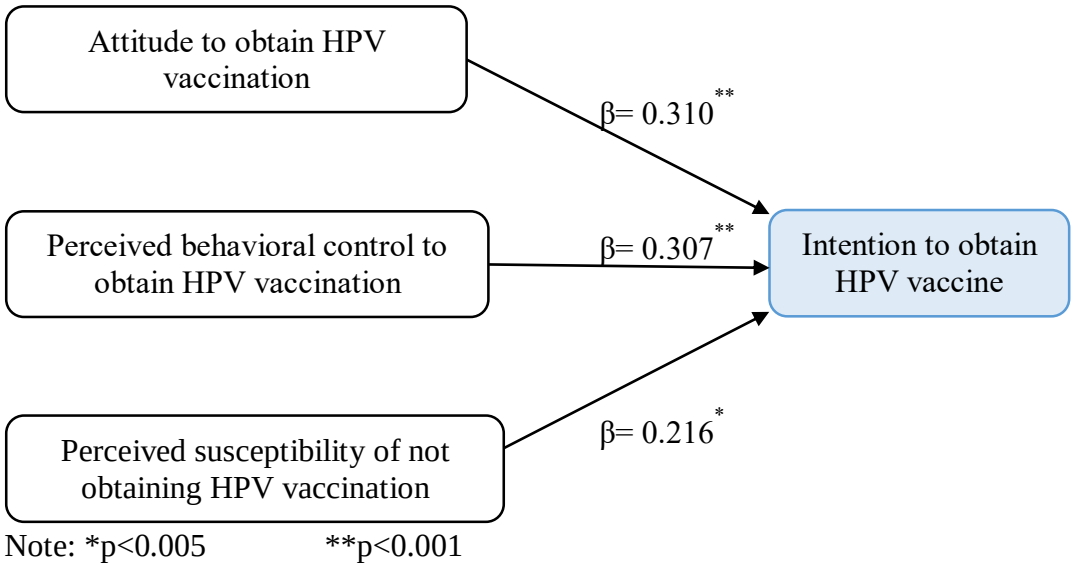

Figure 4 Best predictive multiple regression model for intention to obtain HPV vaccine

Structural Equation Model (SEM) was conducted to confirm the causal relations among multiple variables. This analysis was started with factor analysis, including exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The variable of knowledge of HPV and cervical cancer was eliminated in EFA and CFA because the reliability of this construct was not acceptable. An exploratory analysis with Varimax rotation, assumed that all the factors gathered were independent, was conducted. Exploration of Kaiser-Meyer-Olkin (KMO) to measure sampling

adequacy and the Bartlett's test of sphericity were conducted. KMO value above 0.7 was considered as acceptable for factor analysis.[131] Bartlett's test should be significant, indicated that there were correlation among the questions.[131] A factor loading above 0.6 were used to identify perfectly adequate questions on each factor.[131] The acceptable average variance extracted (AVE) should be greater than 50% with composite reliability equal to or greater than 0.7.

The result shows KMO value of 0.854 indicated that patterns of correlations were relatively compact, the Bartlett's test of sphericity indicated that the correlation matrix was not resembles the identity matrix (χ^2 = 4616.515, *df* = 406, $p < 0.001$), and therefore factor analysis was likely to be appropriate. Investigation of the scree-plot showed a seven-factor solution. The factor loading on each items of the construct calculated using exploratory factor analysis is presented in Appendix 18.

Six attitude to obtain HPV vaccine items and one item of subjective norm to obtain HPV vaccine aligned with factor 1. However, one item of attitude, i.e. "I am pleased to obtain the vaccine" and one the subjective norm item, i.e. "My boyfriend or girlfriend disapprove of my obtaining vaccination. I would…" that aligned with the factor one had a loading factor less than 0.6 means that this items were not perfectly adequate question on the factor 1. Thus, these two items need to be discarded. The four perceived of vaccine effectiveness items aligned most closely with factor 2. The four cost of HPV vaccination items aligned most closely with factor 3. The five subjective norm to obtain HPV vaccination items aligned most closely with factor 4. The four perceived behavioral control to obtain HPV vaccine items aligned most closely with factor 5. The three perceived susceptibility of not obtaining HPV

vaccination items aligned most closely with factor 6. The two intention to obtain to obtain HPV vaccine items aligned most closely with factor 7.

The CFA was calculated to building the general SEM. The detail of the factor loading using CFA is presented in Appendix 19. The CFA was also conducted to build the AVE and measure the composite reliability. The result of calculation of AVE shows that each of the constructs had the AVE >50% with the only lowest AVE shown on the construct of subjective norm to obtain HPV vaccine (55.1%). The composite reliability of all constructs were greater than 0.800 with the lowest composite reliability of 0.850 on the construct of subjective norm to obtain HPV vaccine. The detail of the AVE, composite reliability and the covariance matrix are presented in Appendix 20.

The common method bias (CMB) was calculated to understand if there was a response bias caused by the instrument. The CMB was measured using common latent factor and Harman's single factor. If the Harman's single factor score is less than 50%, it means that the CMB does not appear in the data. The result of Harman's single factor test shows that the variance of all the construct in a single latent factor was 35.216%. The chi-square test of the comparison between the unconstrained and fully constrained (zero constrained) latent factor model was not significant (difference $\chi^2 = 9.7$; difference $df = 6$, $p > 0.001$), which means that the bias was evenly distributed. Finally, the conceptual framework on the causal model for intention to obtain HPV vaccine is presented in Appendix 21. Moreover, the details of the direct and indirect effect mediation on each variables are presented in Appendix 22.

Discussion

There were two specific objectives in this study: 1) to explore the level of intention to obtain HPV vaccine among young Thai college women and 2) to determine the factors influencing the intention to obtain HPV vaccine among young Thai college women. This chapter will discuss the findings in alignment with the research question. The implications of the research finding, limitations and strengths will also be addressed in this part.

Level of intention to obtain the vaccine of HPV

Mean of participants' level of the intention was high (M = 10.073, SD = 3.013, out of 14). It is caused by the inclusion criteria of this research which only includes female participants. A previous study of intent to obtain HPV vaccination among sampled male university students have reported that higher rate of intention among female was due to HPV's direct correlation with cervical cancer.[132] Additionally, the high level of the participants' mean might due to the high cervical cancer mortality in Thailand, as mentioned in the introduction that cervical cancer was ranked in the second leading cause of cancer death in women aged 15 to 44 in Thailand.[3] Previous review revealed that in regions with high cervical cancer mortality such as South East Asia Regions, young women tended to have positive intention to get the HPV vaccine with the percentage ranged from 57% to 65%.[117]

Most of the participants had a moderate to high HPV intention, 44% to 45%, respectively for each level. These results were similar to previous research in Northern and Northeast Thailand in 2015, which showed that female college student

had a strong intention to get vaccinated against HPV.[41] In 2011, the intention among college women in Northern Thailand was less strong compared to the finding on 2015, with the percentage of women with high intention for 56.5%.[24] Intention to get the HPV vaccine among female undergraduate student in Thailand is increasing gradually since introduction in 2009. The HPV vaccination intention among college women in Thailand was higher compared with other developing country. In 2014, the mean of the intention to receive the vaccine in female Lebanese undergraduate student is relatively less strong compared with the intention of Thai college women in 2015 ($M = 5.24 \pm 0.27$, out of 10).[125]

Several characteristics significantly differ between those with high intention and low intention. The difference in monthly allowance received from family between those with high and low intention was revealed in this study, even though participants' parental income did not differ between those two levels of intention. This result was consistent to that prior study among Thai college women that there was no differences of the parental income among two intention levels.[125]

Furthermore, current findings appear to be in line with the prior study among college women in Chiang Mai, which propounds the view that the participants' level of intention associated with the awareness of HPV vaccine.[24] More than three quarters of the college women in this study had ever heard of HPV vaccine. However, the percentage of having heard about HPV vaccine among those low intention was slightly higher than that among those with high intention. This is ineluctable even though HPV vaccine has been introduced approximately nine years ago in Thailand, the detailed information about the vaccine is still barely sufficient. Although the government has included HPV vaccine as a national mandatory vaccine, this program

targeted only for fifth grade. In depth information regarding the HPV vaccine for the population outside the target population of immunization programs is indispensable.

This finding also lends support for the statement that religion may inform young women's thinking about HPV vaccine, thus the vaccination intention of young women affected by their religion belief.[106] Religion is a complex factor, where specific religious perspective about vaccine presumably would be different. Even though Thailand majority populated by Buddhist, the population of Muslim in Southern Thailand is substantial. In this study, about a third of the study population comprised of Muslim student, with half of those had a high intention. On the contrary, more than half of the Buddhist population in this study had a high intention.

Additionally, the findings from this study provide insight into the father's educational background as the influencing factor on the level of intention of their daughter to obtain HPV vaccine. The father's influence on the daughter's intention to obtain HPV vaccine has been less attention. Study in Japan, which focused on the mother role showed that having a higher education level among mother was related to increased acceptance.[114] Unlike the result mentioned before, the mother educational level in this study was not related to the level of intention among college student. Although there has been relatively little research on the father's role, the difference mentioned above may reflect a cultural difference between countries.

Predictors of intention to get the vaccine of HPV

The results of this study suggest that intention to obtain the vaccine of HPV was strongest and significantly correlated with perceived behavioral control. A couple of studies among college-aged women found that perceived behavioral control

was correlated positively and significantly with intention.[36,60] Additionally, positive as well as significant correlation also found among attitude to obtain HPV vaccine, subjective norm, perceived of vaccine effectiveness, perceived susceptibility of not obtaining HPV vaccination and intention. Attitude to obtain HPV vaccine and subjective norm were reported to be significantly related with intention in several previous studies among female college student. [34,36,41,60] Prior studies among female undergraduate student have also shown a significant relationship between participants' perceived susceptibility and intention to receive the HPV vaccine.[36,38] Within the perceived of vaccine effectiveness construct, a study among college women found that response efficacy served as a significant independent determinant of intention to receive the vaccine.[37]

When three significant variables were inputted into the prediction model, the predictor variables accounted for 40.1% of the variance of intention to obtain the HPV vaccine. This was an indication that 59.9% of the variance of college women population intention in this study influenced by other variables that had not been analyzed in this study. Other predictors of intention should be further researched. Even so, this number was around in the average of the variance of intention that commonly found out in the application of TPB on health behavior.[30]

The final model of this study is the second model. The second model was chosen as the final model because it is include only the significant factors of intention to obtain HPV vaccine. The second model contains of three significant predictors including attitude to obtain HPV vaccine, perceived behavioral control to obtain HPV vaccine and perceived susceptibility of not obtaining HPV vaccination which accounted for 40.1% of the variance of intention to obtain the HPV vaccine.

In the final model of this study, the attitude to obtain HPV vaccine contributed the most to the model. This result was supported by a finding in the college women aged 18 to 26.[60] Because attitude to obtain the vaccine of HPV appeared as the strongest predictor, it was interesting to explored which item of the questions in this construct was mostly agreed by college women in this research. The order of the attitude that agreed the most to the least were perception of good idea, useful, favorable to do, safe and desirable.

Perceived behavioral control was found to be the second significant predictor of the intention. If college women perceive that they had control over obtaining the vaccine, the probability to receive the HPV vaccine was high. It was unlike other findings, several research among college women stated that the predicting power of perceived behavioral control was low.[36,40] Furthermore, available evidence pointed that perceived behavioral control accounted as the lowest predictor of intention compare with the other two constructs of TPB.[40] Even so, this result is interesting from the theoretical standpoint as it proofed that intention to obtain the vaccine of HPV depend on the actual control over behavior, in which emphasized the importance used of the TPB over another health behavioral theory in the behavior of obtaining HPV vaccine. This research provided an important opportunity to advance the understanding of perceived behavioral control to moderate the effect of intention on behavior, particularly on college women. As stated by Ajzen (2017), any favorable intention turns out into a behavior only when perceived behavioral control is strong.[119]

Additionally, the final model highlighted independent predictors outside the TPB, perceived susceptibility of not obtaining HPV vaccination as significant predictor of the intention to obtain HPV vaccine. College women were more disposed

to obtain HPV vaccine if they felt a higher chance of developing a genital HPV infection, cervical cancer and genital warts in case they are not obtaining HPV vaccination. This result was consistent with other research which used an integrative model of TPB and HBM, showing that perceived susceptibility as the only significant construct among the other construct in the HBM.[36]

However, the findings of this study showed that the cost and knowledge were not correlated significantly with the intention to get the HPV vaccine. These finding is supported by some prior evidence. A research among college women in the Northern Thailand reported that there were no significant difference of women's perception about vaccine cost between the one who had a low intention and high intention.[24] According to He (2015) financial barrier such as belief that receiving the HPV vaccination is something expensive had no relationship with women's intention. Although cost construct did not predict intention to obtain vaccine of HPV, it was unexpected that perception about cost negatively correlated with perceived susceptibility of not obtaining HPV vaccination. Women who felt susceptible tended to not perceived cost as a barrier to vaccination. A prior understanding on the relationship between cost and perceived susceptibility of not obtaining HPV vaccination is still limited.

The evidence of non-significant and low correlation between the construct of knowledge and intention to obtain HPV vaccine might caused by the fact that the construct of knowledge of HPV and cervical cancer had a low alpha on the reliability. Low Kuder-Richardson 20 (KR-20) coefficient alpha or when the questionnaire does not have a correlation with itself, it would not correlate with another variable.[133] Additionally, the result on knowledge was similar to a study in college-aged

women in the US.[36] It is worthwhile to note that Patel (2012) also discovered a non-significant difference of the mean of HPV-related knowledge between those who did intend and did not intend to receive HPV vaccination. Furthermore, being knowledgeable was not significantly associated with intention to get the vaccine.[26] Interestingly, in this study the knowledge had a weak but significant relationship with attitude to obtain the vaccine. This relationship in accordance with the TPB, verified the role of knowledge as a background factor that would be able to influence attitude toward the behavior or affect intention indirectly.[119] This correlation also strengthened the idea of the possibility of knowledge to influence the attitude to obtain the vaccine among college women in Northern and Northeast Thailand.[41] In prior research among sex workers in Northern Thailand, the finding of this research had proved that there were significant difference of mean of the knowledge on those who had a positive attitude and a negative attitude.[112]

Implication of the research findings for pharmacy

The implication of the findings for pharmacy practice, pharmacy education and pharmacy research are explained as follows:

Pharmacy practices

Pharmacist can take a role as educator and provide information about the vaccine directly to college women. Another key thing to remember that participants would hear the information from physicians, nurses and other women who had vaccinated. Continued effort to promote the HPV vaccine should be made to improve the attitude to obtain HPV vaccine, perceived behavioral control and perceived susceptibility of not obtaining HPV vaccination. HPV vaccination campaign through

Facebook as the number one platform preferred by college women would be beneficial. Another alternative platform would be websites and TV advertisement. As social network has an extraordinary important part in the current generation, the paper based media such as brochure is less preferred.

Pharmacy education

Pharmacy education should prepare pharmacist to have and able to explain the key information that would affected college women intention. A closer look of the finding indicates that the mean score of the knowledge was relatively low. Most college women did not know that HPV infection could not be prevented by vaginal douching after intercourse, could not be treated with antibiotics and the prevention not only indicated for those who had experienced vaginal bleeding or for those who had sexual experience. Less understanding about these details might lead to incorrect behavioral beliefs, such as negative attitudes to obtain the vaccine, which at the end could hinder the intention to obtain the vaccine. Putting this piece of information as a part of the material on the HPV vaccination campaign program would be advantageous. When women understand more about HPV infection and prevention, women may more prioritize herself to get vaccinated against the virus infection.

Another key point is to increase women perceived behavioral control. Building self confident including increase their confidence on the ability of overcoming any obstacle that prevent from obtaining the vaccine would increase their intention to be vaccinated. Any information that boosts their self encouragement on their own ability to control the behavior of vaccination would be valuable to increase intention. Having said that, validation from other people would be less important in their

vaccination decision and they tend to not integrating views from their relatives or significant people.

An effort to increase intention also should be focused on increasing personal relevancy to the HPV vaccine, especially regarding with their own susceptibility to HPV infection, cervical cancer and genital warts. Most of the women underestimate their susceptibility of being infected by the virus or affected by the disease caused by the virus even when they were not vaccinated with the vaccine. Emphasizing that the vaccine would be effective to reduce the risk of being contracted by the virus and suffers from the concomitant disease as well as make them aware that they are disadvantaged population with this disease and susceptible for the first time exposure of the virus are prime concerns for the campaign in college-aged women population. Providing an information that able to correcting biases over the women estimation on their susceptibility of the infection and disease is as important as educating them about the vaccine's effectiveness, its link with HPV infection, cervical cancer and genital warts.

Pharmacy research

This result contributes to the straightening of the theory of planned behavior in the part which has so far been referred as the weakest link for intention. The ability of this research to deliver the importance of actual control owned by college women on their vaccination behavior, perhaps is the most significant aspect of this study. The result of this study, guided by a theory planned behavior and other health behavior theory, gives new and essential details that provide a foundation for the development of interventions in college women. Further research on designing an intervention should be focused on adding knowledge, increasing attitude to obtain the

HPV vaccine and perceived behavioral control, as well as changing the perception of susceptibility of the HPV infection and disease are suitable for college women, thus we have a better chance to increase the intention.

Limitations and strengths of the research

Several limitations of this study are acknowledged to provide opportunities for upcoming research. The limitations of the study are listed as follows:

1. The data are collected by a self-reporting questionnaire, thereby their answer about sexual history may be not completely honest, since such topic is considered taboo in Thai society and furthermore there is a possibility of overestimate in some of answers.

2. Participants were selected through purposive sampling from two universities, therefore the findings may not be able to generalize to all Thai college women.

3. Participants from two faculties were added to overcome the low response rate. Thus, it might leads to a selection bias on the participants included in the final model.

4. The all non-complete responses did not include in this research which could minimize the margin of error on this study.

5. The items of cost of HPV vaccination does not pictures purport to be measured.

In spite of the limitations, the strength of the study is the instrument. The questionnaire was developed, reliability tested, validated and well designed, excluding the construct of knowledge and cost. This study is integrated constructs from several

behavioral theories as the conceptual model. It gives a chance to combine the theories in order to find the best and a fit composition for integration.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

This chapter is divided into two sections including conclusion and recommendations.

Conclusion

This research sets out to empirically examine the level of intention and finding the predictors of intention among college-age women to obtain HPV. This research finding suggests that the level of intention in college-age women almost equally spread on moderate and high level with the percentage of 44% and 45%, respectively. In conclusion, intention to obtain the HPV vaccine among college women are importantly predicted by attitude to obtain HPV vaccine, perceived behavioral control to obtain HPV vaccine and perceived susceptibility of not obtaining HPV vaccination. These variable altogether explained 40.1% variance of intention. This research also provides an exciting finding where knowledge correlated with attitude while perceived susceptibility of not obtaining HPV vaccination correlated with cost. Additionally, this study discovers some important insight on the capacity of perceived behavioral control on the college women intention and uptake of vaccine.

Recommendations for future research

Test-retest reliability of the instrument remain unanswered at present, future research should be done to investigate it. There is abundant room for further development on the questionnaire of knowledge of HPV and cervical cancer where the Cronbach's coefficient alpha in this study is relatively low. The items on the construct of cost need to be rearranged and reworded to be more suite with the purpose of the measurement.

Regardless of the evidence presented in this study regarding the factors that notably predicting intention to obtain HPV vaccine, this research has thrown up a question to investigate these factors in the future research, in order to gain an alternative insight or confirm the available evidence. Future research regarding the role of perceived behavioral control would be worthwhile. A longitudinal research design employing both intention and uptake of the vaccine as the end point of the investigation, would provide a definite evidence about the predictive capacity of perceived behavioral control on intention as well as the function of perceived behavioral control as a moderator between intention and uptake of HPV vaccine among college women.

In future investigations, it might be possible to extend the study form into experimental study, a program to increase intention based on the findings in this study should be considered for further research. The educational material can be tailored to increase attitude to obtain HPV vaccine, perceived behavioral control and perceived susceptibility of not obtaining HPV vaccination. The research questions that could be asked include the important predictor of intention, the impact of educational intervention about HPV vaccine through Facebook, the impact of direct campaign by

physician, the difference between two types of interventions, and the difference between the intention before and after intervention as well as the rate of uptake before and after the intervention. Furthermore, this is an important issue for future research that the research assistant should be intensively trained to explain and supervise the research process in order to reduce the possibility of participants' incomprehension toward the procedure which might cause participants not signed the inform consent yet participants fill the questionnaire. Additionally, the rate on the sampling size should be adding more than 50% since the response rate from the various faculty might varies.

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APPENDIX

Appendix 1 IRB authorization from SBS-IRB Faculty of Nursing, PSU and permission from Songkhla Rajabhat University

เอกสารรับรองโครงการวิจัย
โดยคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สาขาสังคมศาสตร์และพฤติกรรมศาสตร์ มหาวิทยาลัยสงขลานครินทร์

รหัสรับโครงการ: 2018 PSU - St – Qn 004

ชื่อโครงการ: Factors Influencing Intention to Obtain HPV Vaccine in Young Thai College Women.

รหัสหนังสือรับรอง: PSU IRB 2018 – PSU – St 004

ชื่อหัวหน้าโครงการ: Sukmadewi

หน่วยงานที่สังกัด: ภาควิชาเภสัชกรรมคลินิก คณะเภสัชศาสตร์ มหาวิทยาลัยสงขลานครินทร์

เอกสารที่รับรอง:
1. แบบเสนอโครงการเข้ารับการประเมินจริยธรรมในงานวิจัย
2. เครื่องมือวิจัย
3. ใบเชิญชวนและใบยินยอมเข้าร่วมการวิจัย

วันที่รับรอง: 3 สิงหาคม 2561

วันที่หมดอายุ: 3 สิงหาคม 2563

ขอรับรองว่าโครงการดังกล่าวข้างต้น ได้ผ่านการพิจารณาเห็นชอบโดยสอดคล้องกับหลักการเบลมองต์ (Belmont) จากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ สาขาสังคมศาสตร์และพฤติกรรมศาสตร์ มหาวิทยาลัยสงขลานครินทร์

(ลงนาม).....
(รองศาสตราจารย์ ดร.อรัญญา เชาวลิต)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
สาขาสังคมศาสตร์และพฤติกรรมศาสตร์ มหาวิทยาลัยสงขลานครินทร์

ที่ ศธ 0521.1.07/1564

คณะเภสัชศาสตร์
มหาวิทยาลัยสงขลานครินทร์
ตู้ ปณ.7 ปณฝ.คอหงส์
อ.หาดใหญ่ จ.สงขลา 90112

30 สิงหาคม 2561

เรื่อง ขออนุญาตเก็บข้อมูลการวิจัยเพื่อวิทยานิพนธ์

เรียน อธิการบดีมหาวิทยาลัยราชภัฏสงขลา

สิ่งที่ส่งมาด้วย ตัวอย่างแบบสอบถามที่ใช้ในการวิจัยฯ จำนวน 1 ชุด

ด้วย MISS SUKMADEWI รหัสนักศึกษา 5910720026 นักศึกษาหลักสูตรเภสัชศาสตรมหาบัณฑิต สาขาวิชาเภสัชกรรมคลินิก คณะเภสัชศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ได้ทำวิจัยเพื่อวิทยานิพนธ์ หัวข้อ "Factors Influencing Intention to Obtain HPV Vaccine in Young Thai College Women" ทั้งนี้ การศึกษาดังกล่าวจำเป็นต้องศึกษาในนักศึกษาหญิงที่กำลังศึกษาในระดับมหาวิทยาลัย โดยคณะผู้วิจัยได้วางแผนให้เป็นการศึกษาในมหาวิทยาลัยในภาคใต้ ได้แก่ มหาวิทยาลัยสงขลานครินทร์ และมหาวิทยาลัยราชภัฏสงขลา

ในการนี้ คณะเภสัชศาสตร์ มหาวิทยาลัยสงขลานครินทร์ จึงใคร่ขออนุญาตและขอความอนุเคราะห์ให้ MISS SUKMADEWI และผู้ช่วยวิจัย ได้เข้าเก็บข้อมูลโดยใช้แบบสอบถามที่เป็นภาษาไทย ณ มหาวิทยาลัยราชภัฏสงขลา โดยจะดำเนินการเก็บข้อมูลระหว่างวันที่ 1 ตุลาคม 2561 - 31 มกราคม 2562

จึงเรียนมาเพื่อโปรดพิจารณาอนุญาตด้วย จักเป็นพระคุณยิ่ง

เรียน อธิการบดี
คณะเภสัชศาสตร์ ม.สงขลานครินทร์ ขออนุญาตเก็บข้อมูลการวิจัยเพื่อวิทยานิพนธ์ ในนามความอนุเคราะห์ตำแหน่งปราสานงาน
31 ส.ค. 61

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.กมลทิพย์ วิวัฒนวงศา)
อาจารย์ที่ปรึกษาวิทยานิพนธ์

(ผู้ช่วยศาสตราจารย์ ดร.ฐิติมา ด้วงเงิน)
รองคณบดีฝ่ายวางแผนและพัฒนาองค์กร
ปฏิบัติการแทนคณบดีคณะเภสัชศาสตร์

ภาควิชาเภสัชกรรมคลินิก
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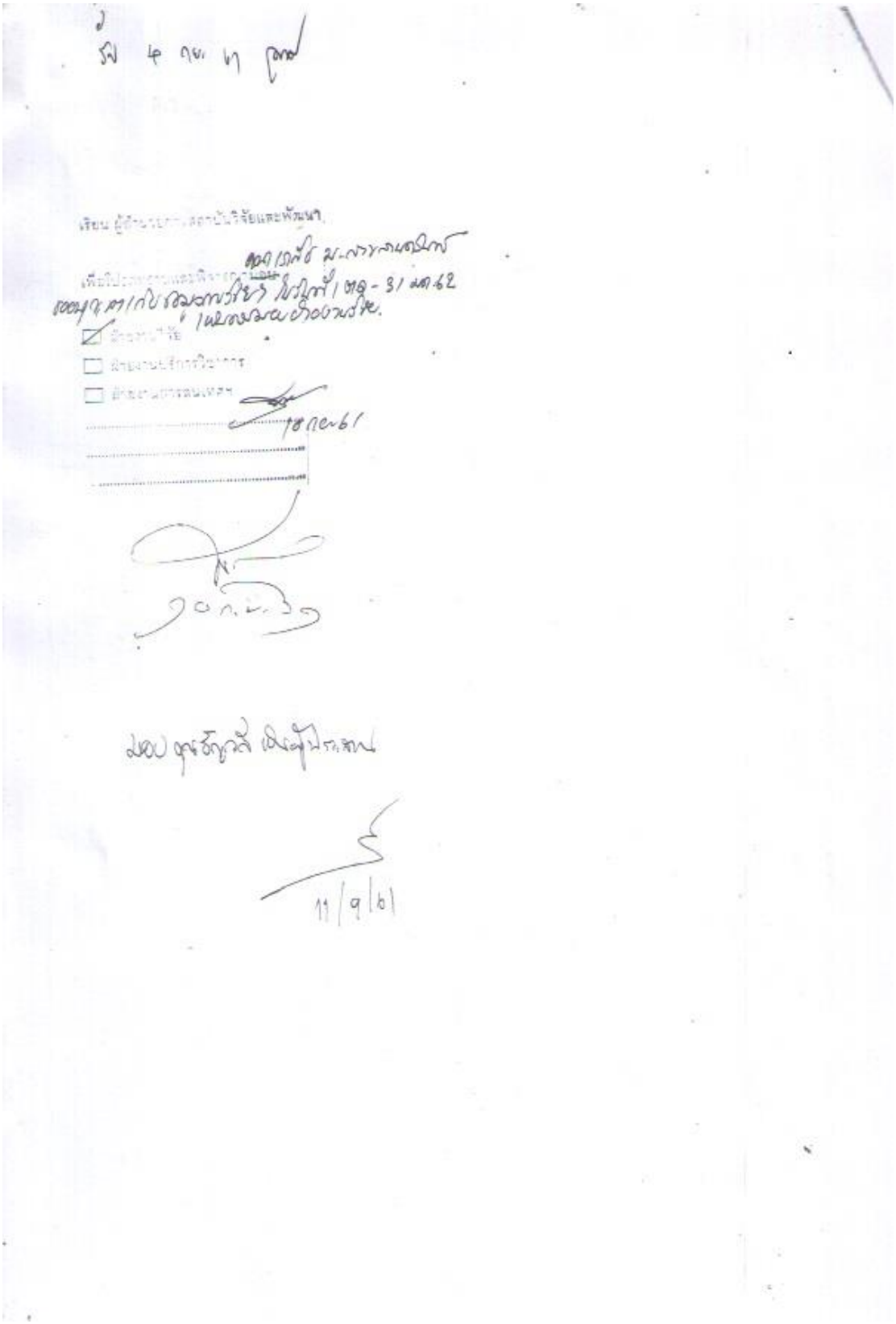

Appendix 2 Summarized of the association between 'intention for HPV vaccination' (dependent variable) and previously reported independent variables

Authors (Year)	Subject and Country	Variables that associated with the intention for HPV vaccination													
		A-GV	**A-V**	**SN-V**	**PBC-V**	**PBC-G12**	**PBC-G6**	**PBC-G3**	**PB-NHC**	**HS**	**CA-DR**	**PS**	**BV**	**BTV**	**RE**
Ratanasiripong et al (2013)[40]	College Women in USA	β= 0.51	-	β= 0.33	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bennett et al (2012)[36]	Female College students in USA	β= 0.29	N/A	β= 0.32	-	N/A	N/A	N/A	N/A	N/A	-	β= 0.20	N/A	N/A	N/A
Krawczyk et al (2012)[39]	College Women in Canada	N/A	OR= 0.41	OR = 0.45	-	N/A	N/A	N/A	OR = 1.35	N/A	OR= 0.81	-	N/A	N/A	N/A
Gainforth et al (2012)[37]	College aged women in Ontario, Canada	N/A	N/A	β= 0.31	N/A	N/A	N/A	β= 0.16	N/A	N/A	N/A	-	β= 0.17	N/A	β= 0.24
Teitelman et al (2011)[98]	Young women in USA	β= 0.84	N/A	β= 0.75	N/A	β= 0.61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Keulen et al (2011)[96]	Girl in Dutch	β= 0.37	N/A	β= 0.15	N/A	N/A	N/A	N/A	N/A	β= 0.12	N/A	β= 0.13	N/A	β= 0.21	N/A
Ratanasiripong et al (2015)[95]	College Men in California, USA	β= 0.49	-	β= 0.42	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Authors (Year)	Subject and Country	Variables that associated with the intention for HPV vaccination													
		A-GV	**A-V**	**SN-V**	**PBC-V**	**PBC-G12**	**PBC-G6**	**PBC-G3**	**PB-NHC**	**HS**	**CA-DR**	**PS**	**BV**	**BTV**	**RE**
Catalano et al (2016)[107]	College Male in Southeastern, USA	β= 0.17	N/A	β= 0.67	N/A	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Johnson et al (2017)[111]	Male college student in Southeastern, USA	-	N/A	β= 0.41	N/A	N/A	β= 0.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Askelson et al (2010)[92]	Mother in Midwest, USA	β= 0.61	N/A	β= 0.16	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kim et al (2016)[120]	Mothers in South Korea	β= 0.61	N/A	β= 0.37	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wang *et al.* (2015)[105]	Parents or guardian in Taiwan	N/A	OR= 2.38	OR= 45.38	OR= 13.06	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes :

A-GV	:	Attitudes: toward Getting Vaccinated against HPV	PBC-V	:	Perceived Behavioral Control over Vaccination
A-V	:	Attitudes toward the Vaccine	PB-NHC	:	Perceived Barrier- Negative Health Consequences
SN-V	:	Subjective Norm toward Vaccination	HS	:	Habit Strength toward HPV Vaccination
PBC-G12	:	Perceived Behavioral Control for Getting HPV Vaccine in Next 12 Months	PBC-G6	:	Perceived Behavioral Control for Getting HPV Vaccine in Next 6 Months
PBC-G3	:	Perceived Behavioral Control for Getting HPV Vaccine in Next 3 Months	BV	:	Beliefs against Vaccine
CA-DR	:	Cues to Action- Doctor Recommendations	PS	:	Perceived Susceptibility
BTV	:	Beliefs about the HPV Vaccination	RE	:	Response Efficacy
N/A	:	Non-Applicable for the research			

Appendix 3 Questionnaire set for the interview

Informed Consent

I the undersigned,
Name:
Address:
Telephone number:
Hereby is declared that

1. I have been explained about the research with the title:
   "Factors Influencing Intention to Obtain HPV Vaccine in Young Thai College Women"
2. I understand the explanation with full of awareness and without any compulsion, I agree to participate in this research with this following state:
   a. Voluntary participation to fulfill the questionnaire as the interest of the research
   b. Data from this research is confidential and used for scientific behalf only
3. If necessary, I could decide to withdraw from this research without stating any reason.

All the statements given are true and without pressure. This research beneficially for me as educative information about my personal health.

Hat Yai,……

(……)

Participant initial: Date of interview:

Telepon number: Health/ non-health:

Part IDemographic questions

No.	Questions	Answer
1	How old are you?	
2	What is your religion?	
3	What is your insurance status?	
4	What is your income each month?	

Part II HPV and HPV vaccine related questions

No.	Questions	Answer
1	Do you know about HPV vaccination?	
2	Could you explain about the information of HPV vaccine?	
3	Who is your source of information about the HPV vaccine?	
4	What kind of things, positive or negative, have you heard about the HPV vaccine?	
5	What do you think about this information?	
6	Who would supporting you to obtain HPV vaccination?	
7	What makes you hard to obtain HPV vaccine?	
	Potential follow-up questions:	
	• I’ve heard that HPV vaccine cost 2500 THB. What do you think?	
	• How is your religion influences your decision on vaccination?	
	• Among Muslim there is a concern that vaccines may contain religiously forbidden (haram) substances. Thus, may caused fear to obtain vaccine. What do you think?	

No.	Questions	Answer
8	What makes you easy to obtain HPV vaccine?	
	Potential follow-up questions:	
	• Vaccine is going to be offered during obgyn appointment. How is your opinion about it?	
	• Universal health coverage for HPV vaccination is going to be enabled. What do you think about it?	
9	What makes you good about obtaining the HPV vaccine?	
	Potential follow-up question:	
	• Some safety issues are raised and claimed that it may cause side effect. How is your opinion about it?	
10	How about your possibility to contract HPV infection or cervical cancer in the future?	
11	Some women feel that obtaining HPV vaccination is embarrassing. What do you think about it?	

Appendix 4 Initial instrument

Information for Subject

You are invited to participate in a research study conducted by Sukmadewi, Master Candidate, from the University of Prince Songkhla University, Thailand. This research titled "Factors Iinfluencing Intention to Obtain HPV Vaccine in Young Thai College Women".

Your participation is voluntary. Please take as much time as you need to read the information sheet. You may also decide to discuss it with your family or friend. Completion or respond to the interview questions will constitute consent to participate in this research project.

A.Purpose

We are asking you to take part in this study because we are trying to learn more about women's attitude to obtain vaccination, subjective norm toward vaccination, perceived behavioral control to obtain vaccination, perceived suceptibility, perceived of vaccine effectiveness, cost of vaccination as well as knowledge of HPV and cervical cancer.

B.Procedures

If you are agreeing to participate in this project, you will be asked to sign informed consent. You will be asked to fulfill and give your answer at the questionnaire sheets. You will be asked some question regarding your socio-demographic, sexual health data and regarding how is your attitude to obtain HPV vaccination, subjective norm to obtain HPV vaccination, perceived behavioral control to obtain HPV vaccination, perceived suceptibility of not obtaining HPV vaccination, perceived of vaccine effectiveness, cost of HPV vaccination and knowledge of HPV and cervical cancer.

C.Potential Risks and Discomforts

There are no anticipated risks to your participation. When you feel some discomfort at responding some questions, please feel free to ask to skip the question.

D.Potential Benefits to Subjects and/or to Society

You will not, directly benefit from your participation in this research study. However, it will gives you an information about your own personal health.

This research will not provide a benefit to you. The overall goal is to understanding of factor associated with intention to obtain HPV vaccination. The findings may provide valuable input to government and third party organization for the continuation of the HPV vaccination program and campaigns as well as to increase the uptake of the HPV vaccine in Thailand.

E.Payment/ Compensation for participation

You will not receive any payment for your participation in this research study.

F.Potential Conflicts of Interest

The investigator of this research does not have any financial interest in the sponsor.

G.Confidentiality

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. The information collected about you will be coded using a fake name (pseudonym) or initial and numbers, for example 1bc-123, etc. The information which has your identifiable information will be kept separate from the rest of your data.

The data will be stored in the investigator's protected computer. The data will be stored approximately seven years after the study has been completed and then destroyed. When the results of the research are published or discuss in conferences, no information will be included that would reveal your identity.

H.Participation and Withdrawal

You can choose whether to be part of this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you are reluctant to answer and still remain in the study. The investigator may withdraw you from this research circumstances which warrant doing so.

I.Alternatives to Participation

Your alternative to participation is not to participate.

J.Right of Research Subjects

You may withdraw your consent at any time and discontinue participation without penalty. If you have any question about your rights as a study subject or you would like to speak with someone independent of the research team to obtain answers to questions about research, or in the event the research staff cannot be reached, please contact the Social and Behavioral Institutional review Board Submission (SBS-IRB), Faculty of Nursing, Prince of Songkla University.

K.Identification of Investigator

If you have any questions or concerns about the research, please feel free to contact the principal investigator, Sukmadewi or advisor, Dr. Kamonthip Wiwattanawongsa.

Sukmadewi Assist. Prof. Dr. Kamonthip Wiwattanawongsa
Prince of Songkhla University Prince of Songkhla University
Faculty of Pharmaceutical Science Faculty of Pharmaceutical Science
Hat Yai, Songkhla, Thailand Hat Yai, Songkhla, Thailand
+66937596733 (Thailand)

Informed Consent

I, the undersigned,
Name :
Current address :
Telephone number :
Hereby is declared that

1. I have been explained about research titled:
   "Factors Iinfluencing Intention to Obtain HPV Vaccine in Young Thai College Women"

2. I understand the explanation with full of awareness and without any compulsion, I agree to participate in this research with this following state:
   a) Voluntary participation to fulfill the questionnaire as the interest of the research
   b) Data from this research is confidential and used for scientific behalf only.

3. If necessary, I could decide to withdraw from this research without stating any reason.

All statements given are true, and without any pressure. This research beneficially for me as educative information about my personal health.

.....,.....

(.....)

Demographic Information

1. How old are you?_year
2. What is your religious background?
   [1] Buddhist
   [2] Catholic
   [3] Hindu
   [4] Muslim
   [5] Protestant
   [6] None
   [7] Other, please specify:
3. How much is your family income?_____ $bath/_{month}$
4. How much money do you get from your family? _____ $bath/_{month}$
5. What is your parents' occupation?

Father:	Mother:
[1] Business owner	[1] Houswife
[2] Governmental employer	[2] Business owner
[3] Company employer	[3] Governmental employer
[4] Laborer	[4] Company employer
[5] Farmer/ Fisherman	[5] Laborer
[6] Other, please specify:_	[6] Farmer/ Fisherman
	[7] Other, please specify:_

6. What is your parents' highest educational background?

Father:	Mother:
[1] Senior high school	[1] Senior high school
[2] Vocational/ technical certificate	[2] Vocational/ technical certificate
[3] Bachelor's degree , please specify: • Medical related major: • Non medical related major:	[3] Bachelor's degree , please specify: • Medical related major: • Non medical related major:
[4] Higher education Please specify medical/ non medical related major:_	[4] Higher education Please specify medical/ non medical related major:_
[5] Other, please specify:_	[5] Other, please specify:_

7. Do you have health insurance?
   [1] Yes
   [2] No
8. Do you have universal health coverage?
   [1] Yes
   [2] No
9. Do you have university health coverage?
   [1] Yes
   [2] No
10. What is your marital status?
    [1] Single
    [2] Married
11. Do you have a history of smoking?
    [1] Yes, please specify how many per day:
    [2] No

Human papillomavirus (HPV) is a group of viruses which some of the types can lead to cervical cancer. Cervical cancer was ranked as the second leading female cancer deaths found in women aged 15 to 44 years in Thailand. Two types of HPV vaccines are available in Thailand for women age 9-26 years old to prevent infection with the types of HPV that most commonly cause cancer.

Attitude to Obtain HPV Vaccination Questionnaire

Please take a moment to tell us what your feeling of obtaining HPV vaccine.

No	Statements and answers							
1	My obtaining an HPV vaccine would be.....							
	Good idea	**1**	**2**	**3**	**4**	**5**	**6**	**7** **Bad idea**
2	My obtaining an HPV vaccine would be.....							
	Favorable	**1**	**2**	**3**	**4**	**5**	**6**	**7** **Unfavorable**
3	My obtaining an HPV vaccine would be.....							
	Desirable	**1**	**2**	**3**	**4**	**5**	**6**	**7** **Undesirable**
4	My obtaining an HPV vaccine would be.....							
	Harmful	**1**	**2**	**3**	**4**	**5**	**6**	**7** **Beneficial**
5	My obtaining an HPV vaccine would be.....							
	Worthless	**1**	**2**	**3**	**4**	**5**	**6**	**7** **Useful**
6	My obtaining an HPV vaccine would be.....							
	Unpleaseant for me	**1**	**2**	**3**	**4**	**5**	**6**	**7** **Pleaseant for me**

Subjective Norm to Obtain HPV Vaccination Questionnaire

Please rate how strongly you agree or disagree with each of the following statements.

No	Statements and answers
1	My boyfriend disapprove of my obtaining an HPV vaccination.
	Strongly agree 1 2 3 4 5 6 7 Strongly disagree
2	My parents approve of my obtaining an HPV vaccination.
	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
3	My physician approve of my obtaining an HPV vaccination.
	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
4	My public health nurse approve of my obtaining an HPV vaccination.
	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
5	My best friend disapprove of my obtaining an HPV vaccination.
	Strongly agree 1 2 3 4 5 6 7 Strongly disagree
6	My teacher disapprove of my obtaining an HPV vaccination.
	Strongly agree 1 2 3 4 5 6 7 Strongly disagree

Perceived Behavioral Control to Obtain HPV Vaccination Questionnaire

Please rate this following statements.

No	Statements and answers
1	I believe that I have the ability to obtain HPV vaccination.
	Definitely do not **1** **2** **3** **4** **5** **6** **7** **Definitely**
2	For me, obtaining HPV vaccination will be.....
	Extremely difficult **1** **2** **3** **4** **5** **6** **7** **Extremely easy**
3	How confident are you that you will be able to obtain HPV vaccination?
	Not at all confident **1** **2** **3** **4** **5** **6** **7** **Completely confident**
4	If it is entirely up to me, I am confident that I would be able to obtain HPV vaccination.
	Strongly disagree **1** **2** **3** **4** **5** **6** **7** **Strongly agree**
5	How confident are you that you could overcome obstacles that prevent you from obtaining the HPV vaccine?
	Not at all confident **1** **2** **3** **4** **5** **6** **7** **Completely confident**
6	How confident are you that you could obatin HPV vaccine if you wanted to do so?
	Not at all confident **1** **2** **3** **4** **5** **6** **7** **Completely confident**

Perceived Suceptibility of Not Obtaining HPV Vaccination Questionnaire

Please rate your chance in each of the following statements.

1: Almost zero 5: Large

2: Very small 6: Very large

3: Small 7: Almost certain

4: Moderate

No	Statements	1	2	3	4	5	6	7
1	If I don't obtain HPV vaccine, I think my chances of getting a gential HPV infection sometime in the future would be							
2	If I don't obtain HPV vaccine, I think my chances of getting cervical cancer sometime in the future would be							
3	If I don't obtain HPV vaccine, I think my chances of getting genital warts sometime in the future would be							

Perceived of vaccine effectiveness Questionnaire

Please rate how strongly you agree or disagree with each of the following statements.

1: Strongly Agree

2: Agree

3: Somewhat agree

4: Neither agree or disagree

5: Somewhat disagree

6: Disagree

7: Strongly disagree

No	Statements	1	2	3	4	5	6	7
1	Being vaccinated against HPV leads to certainty about my health status.							
2	Being vaccinated against HPV would be extremely effective in protecting me against genital wart.							
3	Being vaccinated against HPV would be extremely effective in protecting me against cervical cancer.							
4	Being vaccinated against HPV would be extremely effective in protecting me against HPV.							

Cost of HPV Vaccination Questionnaire

How much would the following factors prevent you from obtain HPV vaccine?

1: Strongly Agree

2: Agree

3: Somewhat agree

4: Neither agree or disagree

5: Somewhat disagree

6: Disagree

7: Strongly disagree

No	Statements	1	2	3	4	5	6	7
1	The HPV vaccine cost too much.							
2	I do not have money for vaccination.							
3	My university health insurance/ universal health coverage do not allowed me to receive the vaccine.							
4	Lacked of supplemental university health insurance coverage or beyond services covered by the universal health coverage.							

Knowledge of HPV and Cervical Cancer Questionnaire

Please answer this following statements.

No	Statements	Answer		
		True	False	Don't Know
1	HPV infection is contracted by sexual contact.			
2	People can transmit HPV to their partner(s) even if they have no symptoms of HPV.			
3	Having multiple sexual partners increases risk of HPV infection.			
4	Sex at an early age increases risk of HPV infection.			
5	Genital warts are caused by HPV infection.			
6	Most people with genital HPV have no visible signs or symptoms.			
7	HPV infection can be prevented by vaginal douching after intercourse.			
8	HPV infection can be treated by antibiotics.			
9	Smoking increases risk of cervical cancer.			
10	HPV infection can cause cervical cancer.			
11	Cervical cancer symptoms commonly present with vaginal discharge or bleeding even in the early stages of disease.			
12	Cervical cancer can possibly cause bleeding after sex.			
13	A Pap smear is one of the measures to prevent cervical cancer by detecting changes in the cervix early before they become cancerous.			
14	A Pap smear is only indicated in women with vaginal discharge or bleeding.			
15	Unmarried women are not supposed to have a Pap smear.			

Intention to Obtain HPV Vaccine Questionnaire

Please rate how strongly you agree or disagree with this following statements.

No	Statements and answers								
1	I am willing to obtain HPV vacccination.								
	Strongly Agree	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Strongly disagree**
2	I plan to obtain HPV vaccination.								
	Strongly Agree	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Strongly disagree**
3	I expect to obtain HPV vaccination at some point.								
	Strongly Agree	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**Strongly disagree**

HPV vaccination advertisement and educator

Please answer this following questions

1. What is the best media platform to advertise to you about the HPV vaccine ?

   [1] Facebook
   [2] Websites
   [3] Television
   [4] Brochure
   [5] Other, please specify.....

2. Who do you think would be the reliable educator that can educate you about the HPV vaccine?

   [1] Doctor
   [2] Lecturer
   [3] Nurse
   [4] Vaccinated woman
   [5] Other, please specify.....

3. If you have additional comments, please write down below:

Sexual Health Information

1. What is your sexual orientation?
   [1] Heterosexual

   [2] Homosexual

   [3] Bisexual

   [4] Other

2. Have you ever had sexual intercourse?
   [1] Yes

   [2] No

3. How old were you when you had sex for the first time? _____years old
4. Do you use protection (i.e. condom) during your sexual intercourse?
   [1] Yes

   [2] No

5. Have you ever experiencing PAP test?
   [1] Yes, please specify the result:

   [2] No

6. Do you have a family history of gynecological tumors?
   [1] Yes, please specify who:

   [2] No

7. Do you have a family history of cervical cancer?
   [1] Yes, please specify who:

   [2] No

8. Do you have a history of sexually transmitted infection?
   [1] Yes, please specify:

   [2] No

Appendix 5 Forward translation

ข้อมูลสำหรับผู้ร่วมวิจัย

ท่านถูกรับเชิญให้เข้าร่วมในการศึกษาวิจัยที่จัดทำโดยสุคมาเดวิ นักศึกษาปริญญาโท จากมหาวิทยาลัยสงขลานครินทร์ ประเทศไทย งานวิจัยเรื่อง “ปัจจัยที่ส่งผลต่อความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูกในหญิงวัยรุ่นไทยในวิทยาลัย”

การมีส่วนร่วมของท่านเป็นไปโดยความสมัครใจ โปรดใช้เวลาในการอ่านเอกสารชี้แจงตามที่ท่านต้องการ ท่านอาจจะตัดสินใจพูดคุยเกี่ยวกับเอกสารที่ชี้แจงกับบุคคลในครอบครัวหรือเพื่อน การตอบคำถามหรือตอบกลับแบบสัมภาษณ์จะต้องยินยอมเข้าร่วมการวิจัยนี้

เป้าหมาย

เราขอให้ท่านเข้าร่วมในการศึกษานี้เนื่องจากเรากำลังทำความเข้าใจเกี่ยวกับทัศนคติของผู้หญิงในการรับวัคซีน การคล้อยตามกลุ่มในสังคม การรับรู้การควบคุมพฤติกรรมในการรับวัคซีน การรับรู้โอกาสเสี่ยงของการเป็นโรค การรับรู้ประสิทธิผลของการตอบสนอง รายจ่ายของการรับวัคซีน และ ความรู้เกี่ยวกับเชื้อเอชพีวี และมะเร็งปากมดลูก

ขั้นตอนการเข้าร่วมการวิจัย

หากท่านตกลงเข้าร่วมโครงการนี้ ท่านจะถูกขอให้เซ็นต์ใบยินยอม ท่านจะถูกขอให้ตอบคำถามในแบบสอบถาม ท่านจะถูกถามบางคำถามเกี่ยวกับข้อมูลคุณลักษณะสังคมและประชากร สุขอนามัยทางเพศ และทัศนคติของท่านในการรับวัคซีนป้องกันมะเร็งปากมดลูกเป็นอย่างไร การคล้อยตามกลุ่มในสังคมในการได้รับวัคซีนป้องกันมะเร็งปากมดลูก การรับรู้การควบคุมพฤติกรรมในการรับวัคซีนป้องกันมะเร็งปากมดลูก การรับรู้โอกาสเสี่ยงของการไม่รับวัคซีนป้องกันมะเร็งปากมดลูก การรับรู้ประสิทธิผลของการรับวัคซีนป้องกันมะเร็งปากมดลูก รายจ่ายของการรับวัคซีนป้องกันมะเร็งปากมดลูก และความรู้เกี่ยวกับเชื้อเอชพีวีและมะเร็งปากมดลูก

ความเสี่ยงและความไม่สุขสบายที่จะเกิดขึ้น

ไม่มีความเสี่ยงใดๆที่จะเกิดขึ้นจากการเข้าร่วมการวิจัยครั้งนี้ เมื่อท่านรู้สึกไม่สบายใจขณะกำลังตอบคำถามบางคำถาม ขอให้ท่านบอกข้ามคำถามนั้นโดยไม่ต้องเกรงใจ

ประโยชน์ที่จะได้รับต่อผู้ร่วมการวิจัยและสังคม

ท่านจะไม่ได้รับประโยชน์จากการเข้าร่วมการศึกษาวิจัยครั้งนี้โดยตรง

การศึกษาวิจัยนี้ไม่ได้ให้ประโยชน์กับท่านโดยตรง เป้าหมายโดยรวม เพื่อทำความเข้าใจปัจจัยที่สอดคล้องกับความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูก ผลการศึกษ อาจให้ข้อมูลที่เป็นประโยชน์แก่รัฐบาลและองค์กรที่เกี่ยวข้อง เพื่อดำเนินโปรแกรมการรับวัคซีนป้องกันมะเร็งปากมดลูกและการรณรงค์อย่างต่อเนื่อง รวมถึงการเพิ่มการเข้าถึงวัคซีนป้องกันมะเร็งปากมดลูกในประเทศไทย

ค่าใช้จ่าย/ค่าตอบแทนในการเข้าร่วมการวิจัย

ท่านจะไม่ได้รับค่าตอบแทนใดๆจากการเข้าร่วมการศึกษาวิจัยนี้

ผลประโยชน์ทับซ้อนที่อาจจะเกิดขึ้น

ผู้วิจัยของโครงการนี้ไม่มีความเกี่ยวข้องทางการเงินใดๆ ในผู้สนับสนุนโครงการ

การรักษาความลับ

ข้อมูลใดๆที่จะเชื่อมโยงกับการศึกษาครั้งนี้และสามารถระบุตัวตนถึงท่านจะถูกเก็บเป็นความลับ และจะเปิดเผยเมื่อได้รับอนุญาตจากท่าน หรือตามกฎหมายเท่านั้น ข้อมูลที่ได้เกี่ยวกับตัวท่านจะถูกระบุเป็นนามแฝง หรือนามย่อ และตัวเลข ตัวอย่าง เช่น 1บีซี-123 เป็นต้น ข้อมูลที่ระบุตัวตนของท่านจะถูกเก็บแยกจากข้อมูลอื่นของท่าน

ข้อมูลจะเก็บไว้ในคอมพิวเตอร์ของผู้วิจัยที่มีระบบป้องกัน ข้อมูลจะถูกเก็บไว้หลังจากการศึกษาเสร็จสิ้น ประมาณ 7 ปี แล้วจะถูกทำลาย เมื่อข้อมูลได้รับการเผยแพร่หรืออภิปรายในที่ประชุม จะไม่มีข้อมูลใดๆที่จะระบุตัวตนของท่าน

การเข้าร่วมและถอนตัวจากการวิจัย

ท่านสามารถเลือกที่จะเข้าร่วมการวิจัยหรือไม่ก็ได้ หากท่านอาสาเข้าร่วมการศึกษาครั้งนี้ ท่านอาจจะถอนตัวได้ตลอดเวลาโดยไม่มีผลกระทบใดๆ ท่านอาจจะปฏิเสธตอบคำถามบางคำถามที่ท่านไม่อยากตอบ และยังอยู่ในการวิจัย ผู้วิจัยอาจถอนตัวท่านจากการวิจัยครั้งนี้หากมีสถานการณ์ที่จำเป็นให้ต้องปฏิบัติเช่นนั้น

ทางเลือกต่างๆ ในการเข้าร่วมการวิจัย

ทางเลือกอื่นๆ ในการเข้าร่วมวิจัยของท่าน คือ ไม่เข้าร่วม

สิทธิของผู้ร่วมการวิจัย

ท่านอาจจะยกเลิกการให้ความยินยอมเข้าร่วมการวิจัยเมื่อไหร่ก็ได้ และการยุติการมีส่วนร่วมในการวิจัย โดยไม่มีบทลงโทษใดๆ หากท่านมีข้อสงสัยเกี่ยวสิทธิในฐานะผู้ร่วมวิจัย หรือท่านต้องการพูดคุยกับบางคนที่ไม่อยู่ในทีมวิจัยเพื่อให้ได้คำตอบเกี่ยวกับการวิจัย หรือในกรณีที่ไม่สามารถติดต่อผู้วิจัยได้ โปรดติดต่อศูนย์จริยธรรมการวิจัยในมนุษย์ สาขาสังคมศาสตร์และพฤติกรรมศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์

ข้อมูลของผู้วิจัย

หากท่านมีคำถามหรือความกังวลใดๆเกี่ยวกับการวิจัย โปรดติดต่อผู้วิจัยหลัก, สุคมาเดวิ, หรือ ที่ปรึกษา ดร. กมลทิพย์ วิวัฒนวงศา

สุคมาเดวิ ผู้ช่วยศาสตราจารย์ ดร. กมลทิพย์ วิวัฒนวงศา มหาวิทยาลัยสงขลานครินทร์
มหาวิทยาลัยสงขลานครินทร์
คณะเภสัชศาสตร์ คณะเภสัชศาสตร์
หาดใหญ่ สงขลา ประเทศไทย หาดใหญ่ สงขลา ประเทศไทย
+66937596733 (ประเทศไทย)

ใบยินยอมเข้าร่วมการวิจัย

ข้าพเจ้า, ผู้ลงนาม,
ชื่อ:
ที่อยู่:
เบอร์โทรศัพท์:
โดยเอกสารฉบับนี้ ขอประกาศว่า

ข้าพเจ้าได้รับการอธิบายเกี่ยวกับการวิจัยหัวข้อ “ปัจจัยที่ส่งผลต่อความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูกในหญิงวัยรุ่นไทยในวิทยาลัย”

ข้าพเจ้าเข้าใจสิ่งที่ได้รับการอธิบายเป็นอย่างดีแล้ว และไม่ได้ถูกบังคับ ข้าพเจ้ายินยอมเข้าร่วมการวิจัย ดังข้อความต่อไปนี้

สมัครใจเข้าร่วมตอบคำถามเพราะความสนใจในการวิจัยนี้
ข้อมูลจากการวิจัยนี้จะถูกเก็บเป็นความลับและนำมาใช้สำหรับวิชาการเท่านั้น
หากจำเป็น ข้าพเจ้าสามารถถอนตัวจากการศึกษาครั้งนี้ได้ โดยไม่ต้องชี้แจงเหตุผล
ข้อมูลทั้งหมดนี้เป็นความจริง และไม่ได้รับแรงกดดันใดๆ การวิจัยนี้มีประโยชน์สำหรับข้าพเจ้าเนื่องจากเป็นข้อมูลความรู้เกี่ยวกับสุขภาพส่วนบุคคลของข้าพเจ้า

.....,.....

(.....)

ข้อมูลประชากร

1. คุณอายุเท่าไหร
2. คุณนับถือศาสนาอะไร

   [1] พุทธ
   [2] คาทอลิก
   [3] ฮินดู
   [4] มุสลิม
   [5] โปรแตสแตนท์
   [6] ไม่มีศาสนา
   [7] อื่นๆ, โปรดระบุ .....
3. ครอบครัวคุณมีรายได้เท่าไหร่ _____ บาทเดือน/
4. คุณได้รับเงินจากครอบครัวของท่านเท่าไหร่ _____ บาทเดือน/
5. พ่อแม่ของคุณประกอบอาชีพอะไร

พ่อ:	แม่:
[1] เจ้าของธุรกิจ	[1] แม่บ้าน
[2] รับราชการ	[2] เจ้าของธุรกิจ
[3] พนักงานบริษัท	[3] รับราชการ
[4] รับจ้าง	[4] พนักงานบริษัท
[5] ชาวสวนประมง/	[5] รับจ้าง
[6] อื่นๆ โปรดระบุ :_	[6] ชาวสวนประมง/
	[7] อื่นๆ โปรดระบุ : _

6. ระดับการศึกษาสูงสุดของพ่อแม่คุณคือข้อใด

พ่อ	แม่
[1] มัธยมปลาย	[1] มัธยมปลาย
[2] ปวชปวส/	[2] ปวชปวส/
[3] ปริญญาตรี, โปรดระบุ:	[3] ปริญญาตรี, โปรดระบุ:
สาขาเกี่ยวข้องกับการแพทย์:	สาขาเกี่ยวข้องกับการแพทย์:
สาขาไม่เกี่ยวข้องกับการแพทย์:	สาขาไม่เกี่ยวข้องกับการแพทย์:
[4] การศึกษาขั้นสูง	[4] การศึกษาขั้นสูง
โปรดระบุสาขาเกี่ยวข้องหรือไม่เกี่ยวข้องกับการแพทย์:_	โปรดระบุสาขาเกี่ยวข้องหรือไม่เกี่ยวข้องกับการแพทย์: _
[5] อื่นๆ โปรดระบุ_	[5] อื่นๆ โปรดระบุ_

7. คุณมีประกันสุขภาพหรือไม่
   [1] มี
   [2] ไม่มี
8. คุณมีบัตรประกันสุขภาพถ้วนหน้าหรือไม่
   [1] มี
   [2] ไม่มี
9. คุณมีบัตรประกันสุขภาพของมหาวิทยาลัยหรือไม่
   [1] มี
   [2] ไม่มี
10. สถานะสมรสของคุณคืออะไร
   [1] โสด
   [2] แต่งงาน
11. คุณมีประวัติสูบบุหรี่หรือไม่
   [1] มี, โปรดระบุจำนวนต่อวัน:
   [2] ไม่มี

เชื้อเอชพีวี เป็นกลุ่มของไวรัส ซึ่งบางกลุ่มของไวรัสชนิดนี้สามารถก่อให้เกิดมะเร็งปากมดลูก มะเร็งปากมดลูกเป็นสาเหตุการตายอันดับที่สองของผู้หญิงที่เป็นมะเร็ง ซึ่งในประเทศไทย พบในผู้หญิงที่มีอายุระหว่าง 15 – 44 ปี มีวัคซีนป้องกันมะเร็งปากมดลูก 2 ชนิดที่ใช้อยู่ในประเทศไทยสำหรับผู้หญิงอายุระหว่าง 9-26 ปี เพื่อป้องกันการติดเชื้อเอชพีวีซึ่งเป็นสาเหตุที่พบบ่อยของการเกิดมะเร็ง

แบบสอบถามทัศนคติในการรับวัคซีนป้องกันมะเร็งปากมดลูก

ขอให้คุณใช้เวลาในการบอกความรู้สึกในการรับวัคซีนป้องกันมะเร็งปากมดลูก

ข้อ	ข้อความและคำตอบ
1	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น.....
	ความคิดที่ดี 1 2 3 4 5 6 7 **ความคิดที่ไม่ดี**
2	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น.....
	ที่นิยม 1 2 3 4 5 6 7 **ที่ไม่นิยม**
3	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น.....
	ที่ต้องการ 1 2 3 4 5 6 7 **ที่ไม่ต้องการ**
4	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น.....
	อันตราย 1 2 3 4 5 6 7 **ประโยชน์**
5	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็นสิ่งที่.....
	ไม่คุ้มค่า 1 2 3 4 5 6 7 **คุ้มค่า**
6	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น.....
	สิ่งที่ไม่พึงพอใจสำหรับฉัน 1 2 3 4 5 6 7 **สิ่งที่พึงพอใจสำหรับฉัน**

แบบสอบถามการคล้อยตามกลุ่มในการได้รับวัคซีนป้องกันมะเร็งปากมดลูก

โปรดระบุระดับว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความเหล่านี้มากน้อยเพียงใด

ข้อ	ข้อความและคำตอบ
1	แฟนของฉันไม่เห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน
	เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **ไม่เห็นด้วยมากที่สุด**
2	พ่อแม่ของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน
	ไม่เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **เห็นด้วยมากที่สุด**
3	หมอประจำตัวของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน
	ไม่เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **เห็นด้วยมากที่สุด**
4	พยาบาลสาธารณสุขของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน
	ไม่เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **เห็นด้วยมากที่สุด**
5	เพื่อนสนิทของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน
	เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **ไม่เห็นด้วยมากที่สุด**
6	คุณครูของฉันไม่เห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน
	เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **ไม่เห็นด้วยมากที่สุด**

แบบสอบถามการรับรู้การควบคุมพฤติกรรมในการรับวัคซีนป้องกันมะเร็งปากมดลูก
โปรดให้ระดับของข้อความต่อไปนี้

ข้อ	ข้อความและคำตอบ
1	ฉันเชื่อว่าฉันมีความสามารถที่จะรับวัคซีนป้องกันมะเร็งปากมดลูก
	ไม่ได้อย่างแน่นอน 1 2 3 4 5 6 7 **ได้อย่างแน่นอน**
2	สำหรับฉันแล้ว การรับวัคซีนป้องกันมะเร็งปากมดลูกเป็นสิ่งที่ .....
	ยุ่งยากที่สุด 1 2 3 4 5 6 7 **ง่ายที่สุด**
3	ความมั่นใจที่คุณจะสามารถรับวัคซีนป้องกันมะเร็งปากมดลูกเป็นอย่างไร?
	ไม่มั่นใจเลย 1 2 3 4 5 6 7 **มั่นใจมากที่สุด**
4	ถ้าขึ้นอยู่กับการตัดสินใจของฉันทั้งหมด ฉันมั่นใจว่าฉันจะสามารถรับวัคซีนป้องกันมะเร็งปากมดลูกได้
	ไม่เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 **เห็นด้วยมากที่สุด**
5	คุณมั่นใจแค่ไหนว่า คุณสามารถฟันฝ่าอุปสรรคที่จะขัดขวางคุณจากการรับวัคซีนป้องกันมะเร็งปากมดลูกได้
	ไม่มั่นใจเลย 1 2 3 4 5 6 7 **มั่นใจมากที่สุด**
6	ท่านมั่นใจแค่ไหนว่า ท่านจะสามารถรับวัคซีนป้องกันมะเร็งปากมดลูกได้ถ้าท่านต้องการ
	ไม่มั่นใจเลย 1 2 3 4 5 6 7 **มั่นใจมากที่สุด**

แบบสอบถามการรับรู้โอกาสเสี่ยงของการไม่รับวัคซีนป้องกันมะเร็งปากมดลูก

โปรดระบุโอกาสของคุณในแต่ละข้อความ ต่อไปนี้

1: เกือบเป็นศูนย์ 5: มาก

2: น้อยมาก 6: มากที่สุด

3: น้อย 7: ค่อนข้างแน่นอน

4: ปานกลาง

ข้อ	ข้อความ	1	2	3	4	5	6	7
1	ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูก ฉันคิดว่าโอกาสของฉันที่จะติดเชื้อเอชพีวีที่อวัยวะเพศเกิดขึ้นได้ในอนาคต							
2	ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูก ฉันคิดว่าโอกาสของฉันที่จะเป็นมะเร็งปากมดลูกเกิดขึ้นได้ในอนาคต							
3	ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูก ฉันคิดว่าโอกาสของฉันที่จะติดเชื้อหูดหงอนไก่เกิดขึ้นได้ในอนาคต							

แบบสอบถามการรับรู้ประสิทธิผลของการรับวัคซีนป้องกันมะเร็งปากมดลูก

โปรดระบุว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความเหล่านี้มากน้อยเพียงใด

1: เห็นด้วยอย่างยิ่ง

2: เห็นด้วย

3: ค่อนข้างเห็นด้วย

4: ไม่แน่ใจ

5: ค่อนข้างไม่เห็นด้วย

6: ไม่เห็นด้วย

7: ไม่เห็นด้วยอย่างยิ่ง

ข้อ	ข้อความ	1	2	3	4	5	6	7
1	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีก่อให้เกิดความมั่นใจเกี่ยวกับภาวะสุขภาพของฉัน							
2	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะมีประสิทธิภาพมากที่สุดในการปกป้องฉันจากหูดหงอนไก่							
3	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะมีประสิทธิภาพมากที่สุดในการปกป้องฉันต่อต้านมะเร็งปากมดลูก							
4	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะมีประสิทธิภาพมากที่สุดในการปกป้องฉันต่อต้านเชื้อเอชพีวี							

แบบสอบถามรายจ่ายของการรับวัคซีนป้องกันมะเร็งปากมดลูก

ปัจจัยต่างๆ ดังต่อไปนี้สามารถขัดขวางท่านจากการรับวัคซีนป้องกันมะเร็งปากมดลูกมากน้อยเพียงใด

1: เห็นด้วยอย่างยิ่ง

2: เห็นด้วย

3: ค่อนข้างเห็นด้วย

4: ไม่แน่ใจ

5: ค่อนข้างไม่เห็นด้วย

6: ไม่เห็นด้วย

7: ไม่เห็นด้วยอย่างยิ่ง

ข้อ	ข้อความ	1	2	3	4	5	6	7
1	วัคซีนป้องกันมะเร็งปากมดลูกราคาแพงมาก							
2	ฉันไม่มีเงินสำหรับการฉีดวัคซีน							
3	ประกันสุขภาพของมหาวิทยาลัย/บัตรประกันสุขภาพถ้วนหน้าของฉันไม่อนุญาตให้ฉันรับวัคซีน							
4	ขาดการคุ้มครองของประกันสุขภาพมหาวิทยาลัย หรือนอกเหนือจากสิทธิที่ได้รับจากบัตรประกันสุขภาพถ้วนหน้า							

แบบสอบถามความรู้เกี่ยวกับเชื้อเอชพีวีและมะเร็งปากมดลูก

โปรดตอบคำถามต่อไปนี้

ข้อ	ข้อความ	คำตอบ		
		ถูก	ผิด	ไม่ทราบ
1	การติดเชื้อเอชพีวี ติดต่อได้ทางเพศสัมพันธ์			
2	คนเราสามารถแพร่เชื้อเอชพีวีไปยังคู่นอนได้ ถึงแม้ว่าเขาเหล่านั้นจะไม่มีอาการของเชื้อเอชพีวี			
3	การมีคู่นอนหลายคนเพิ่มความเสี่ยงต่อการติดเชื้อเอชพีวี			
4	การมีเพศสัมพันธ์ก่อนวัยอันควรเพิ่มความเสี่ยงต่อการติดเชื้อเอชพีวี			
5	หูดหงอนไก่มีสาเหตุจากการติดเชื้อเอชพีวี			
6	คนส่วนใหญ่ที่มีการติดเชื้อเอชพีวีบริเวณอวัยวะเพศจะไม่แสดงอาการให้เห็น			
7	การติดเชื้อเอชพีวีสามารถป้องกันได้โดยการสวนล้างช่องคลอดหลังจากมีเพศสัมพันธ์			
8	การติดเชื้อเอชพีวีสามารถรักษาด้วยยาฆ่าเชื้อ			
9	การสูบบุหรี่เพิ่มความเสี่ยงต่อการเป็นมะเร็งปากมดลูก			
10	การติดเชื้อเอชพีวีสามารถก่อให้เกิดมะเร็งปากมดลูก			
11	อาการแสดงของมะเร็งปากมดลูกโดยทั่วไปจะนำมาด้วยมีสิ่งคัดหลั่งหรือเลือดออกทางช่องคลอด ถึงแม้ว่าจะอยู่ในระยะแรกของโรค			
12	มะเร็งปากมดลูก สามารถก่อให้เกิดเลือดออกหลังจากมีเพศสัมพันธ์ได้			
13	การตรวจแปปสเมียร์เป็นหนึ่งในวิธีการในการป้องกันมะเร็งปากมดลูกโดยการค้นหาการเปลี่ยนแปลงที่เกิดขึ้นบริเวณปากมดลูกก่อนที่จะกลายเป็นมะเร็ง			
14	การตรวจแปปสเมียร์เป็นวิธีการเฉพาะในผู้หญิงที่มีสิ่งคัดหลังหรือเลือดออกทางช่องคลอดเท่านั้น			
15	ผู้หญิงที่ไม่ได้แต่งงานไม่จำเป็นต้องได้รับการตรวจแปปสเมียร์			

แบบสอบถามความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูก

โปรดระบุว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความเหล่านี้มากน้อยเพียงใด

ข้อ	ข้อความและคำตอบ
1	ฉันเต็มใจที่จะรับวัคซีนป้องกันมะเร็งปากมดลูก
	เห็นด้วยอย่างยิ่ง 1 2 3 4 5 6 7 **ไม่เห็นด้วยอย่างยิ่ง**
2	ฉันวางแผนที่จะรับวัคซีนป้องกันมะเร็งปากมดลูก
	เห็นด้วยอย่างยิ่ง 1 2 3 4 5 6 7 **ไม่เห็นด้วยอย่างยิ่ง**
3	ฉันตั้งใจว่าจะรับวัคซีนป้องกันมะเร็งปากมดลูก
	เห็นด้วยอย่างยิ่ง 1 2 3 4 5 6 7 **ไม่เห็นด้วยอย่างยิ่ง**

การประชาสัมพันธ์และนักวิชาการ
โปรดตอบคำถามดังต่อไปนี้

1. สื่อที่ดีที่สุดที่คุณเข้าถึงข้อมูลประชาสัมพันธ์เกี่ยวกับวัคซีนป้องกันมะเร็งปากมดลูก คือข้อใด

   [1] เฟสบุค
   [2] เว็บไซต์
   [3] โทรทัศน์
   [4] แผ่นพับ
   [5] อื่นๆ โปรดระบุ .....

2. คุณคิดว่า ใครคือนักวิชาการที่น่าเชื่อถือ ที่สามารถให้ความรู้ท่านเกี่ยวกับวัคซีนป้องกันมะเร็งปากมดลูกได้

   [1] แพทย์
   [2] อาจารย์
   [3] พยาบาล
   [4] ผู้หญิงที่เคยได้รับวัคซีน
   [5] อื่นๆ
   โปรดระบุ.....

3. หากคุณมีข้อเสนอแนะ โปรดระบุด้านล่างนี้

ข้อมูลสุขอนามัยทางเพศ

1. รสนิยมทางเพศของคุณคืออะไร

   [1] รักต่างเพศ

   [2] รักเพศเดียวกัน

   [3] รักสองเพศ

   [4] อื่นๆ

2. คุณเคยมีเพศสัมพันธ์หรือไม่

   [1] เคย

   [2] ไม่เคย

3. คุณเริ่มมีเพศสัมพันธ์ครั้งแรกเมื่ออายุเท่าไหร่ _____ ปี

4. คุณมีการป้องกัน ระหว่างมีเพศสัมพันธ์ หรือไม่ (เช่น ใช้ถุงยางอนามัย)

   [1] มี

   [2] ไม่มี

5. คุณเคยได้รับการตรวจแปปสเมียร์

   [1] เคย, โปรดระบุผลการตรวจ:

   [2] ไม่เคย

6. คุณมีประวัติครอบครัวเป็นมะเร็งทางนรีเวชหรือไม่

   [1] มี, โปรดระบุใคร:

   [2] ไม่มี

7. คุณมีประวัติครอบครัวเป็นมะเร็งปากมดลูกหรือไม่

   [1] มี, โปรดระบุใคร:

   [2] ไม่มี

8. คุณมีประวัติติดเชื้อทางเพศสัมพันธ์หรือไม่

   [1] มี, โปรดระบุ:

   [2] ไม่มี

Appendix 6 Content comparison of the two versions of the demographic questionnaire, sexual health information questionnaire and factors associated with the intention to obtain HPV vaccination

Please compare the content of the two questionnaires by using the 4-point Likert-scale ranging from 1 (Not Relevant) to 4 (Very Relevant) with circling on number on each item.

1	=	Not Relevant
2	=	Somewhat Relevant
3	=	Quite Relevant
4	=	Very Relevant

The possibility of the suggestions may caused by:

- It has a different meaning or some words added on the forward translation
- It has a different meaning or some words added on the backward translation
- Etc.

Original version	Back translation version	Rating				Suggestions
1. How old are you?_____year	1. How old are you?_____year	1	2	3	4	
2. What is your religious background? [1] Buddhist [2] Catholic [3] Hindu [4] Muslim [5] Protestant [6] None [7] Other, please specify:	2. What is your religious background? [1] Buddhist [2] Catholic [3] Hindu [4] Muslim [5] Protestant [6] None [7] Other, please specify:	1	2	3	4	
3. How much is your family income? ...Bath/month	3. How much is your family income? …Bath/month	1	2	3	4	
4. How much money do you get from your family? …Bath/month	4. How much money do you get from your family?... Bath/month	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
5. What is your parents occupation? Father: [1] Business owner [2] Governmental employer [3] Company employer [4] Laborer [5] Farmer/ Fisherman [6] Other, please specify: Mother: [1] Houswife [2] Business owner [3] Governmental employer [4] Company employer [5] Laborer [6] Farmer/ Fisherman [7] Other, please specify:	5. What is your parents occupation? Father: [1] Business owner [2] Governmental employer [3] Company employer [4] Laborer [5] Farmer/ Fisherman [6] Other, please specify: Mother: [1] Houswife [2] Business owner [3] Governmental employer [4] Company employer [5] Laborer [6] Farmer/ Fisherman [7] Other, please specify:	1	2	3	4	
6. What is your parents highest educational background? Father: [1] Senior high school [2] Vocational/ technical certificate [3] Bachelor's degree, please specify: • Medical related major: • Non medical related major: [4] Higher education • Please specify medical/ non medical related major: [5] Other, please specify: Mother: [1] Senior high school [2] Vocational/ technical certificate [3] Bachelor's degree, please specify: • Medical related major: • Non medical related major: [4] Higher education • Please specify medical/ non medical related major: [5] Other, please specify:	6. What is your parents highest educational background? Father: [2] Senior high school [4] Vocational/ technical certificate [5] Bachelor's degree, please specify: • Medical related major: • Non medical related major: [6] Higher education • Please specify medical/ non medical related major: [7] Other, please specify: Mother: [3] Senior high school [4] Vocational/ technical certificate [5] Bachelor's degree, please specify: • Medical related major: • Non medical related major: [6] Higher education • Please specify medical/ non medical related major: [6] Other, please specify:	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
7. Do you have halth insurance? [1] Yes [2] No	7. Do you have halth insurance? [1] Yes [2] No	1	2	3	4	
8. Do you have universal health coverage? [1] Yes [2] No	8. Do you have a universal health insurance card? [1] Yes [2] No	1	2	3	4	
9. Do you have university health coverage? [1] Yes [2] No	9. Do you have a university health insurance card? [1] Yes [2] No	1	2	3	4	
10. What is your marital status? [1] Single [2] Married	10. What is your marital status? [1] Single [2] Married	1	2	3	4	
11. Do you have a history of smoking? [1] Yes, please specify how many per day : [2] No	11. Do you have a smoking history? [1] Yes, please specify the number of days : [2] No	1	2	3	4	
12. My obtaining an HPV vaccine would be..... Good idea 1 2 3 4 5 6 7 Bad idea	12. My HPV vaccine is..... Good idea 1 2 3 4 5 6 7 Bad idea	1	2	3	4	
13. My obtaining an HPV vaccine would be..... Favorable 1 2 3 4 5 6 7 Unfavorable	13. My HPV vaccine is..... Favorable 1 2 3 4 5 6 7 Unfavorable	1	2	3	4	
14. My obtaining an HPV vaccine would be..... Desirable 1 2 3 4 5 6 7 Undesirable	14. My HPV vaccine is..... Desirable 1 2 3 4 5 6 7 Undesirable	1	2	3	4	
15. My obtaining an HPV vaccine would be..... Harmful 1 2 3 4 5 6 7 Beneficial	15. My HPV vaccine is..... Harmful 1 2 3 4 5 6 7 Beneficial	1	2	3	4	
16. My obtaining an HPV vaccine would be..... Worthless 1 2 3 4 5 6 7 Useful	16. My HPV vaccine is..... Worthless 1 2 3 4 5 6 7 Useful	1	2	3	4	
17. My obtaining an HPV vaccine would be..... Unpleasant for me 1 2 3 4 5 6 7 Pleasant for me	17. My HPV vaccine is..... Unpleasant for me 1 2 3 4 5 6 7 Pleasant for me	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
18. My boyfriend disapprove of my obtaining an HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	18. My boyfriend does not agree of my HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
19. My parents approve of my obtaining an HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	19. My parents agree of my HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
20. My physician approve of my obtaining an HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	20. My doctor agrees of my HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
21. My public health nurse approve of my obtaining an HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	21. My nurses agrees with my HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
22. My best friend disapprove of my obtaining an HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	22. My close friend agrees with my HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
23. My teacher disapprove of my obtaining an HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	23. My teacher does not agree with my HPV vaccination. Strongly agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
24. I believe that I have the ability to obtain HPV vaccination. Definitely do not 1 2 3 4 5 6 7 Definitely	24. I believe I have the ability to take HPV vaccination. Definitely do not 1 2 3 4 5 6 7 Definitely	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
25. For me, obtaining HPV vaccination will be..... Extremely difficult 1 2 3 4 5 6 7 Extremely easy	25. For me, HPV vaccination is what..... Extremely difficult 1 2 3 4 5 6 7 Extremely easy	1	2	3	4	
26. How confident are you that you will be able to obtain HPV vaccination? Not at all confident 1 2 3 4 5 6 7 Completely confident	26. How confident can you get a HPV vaccination? Not at all confident 1 2 3 4 5 6 7 Completely confident	1	2	3	4	
27. If it is entirely up to me, I am confident that I would be able to obtain HPV vaccination. Strongly disagree 1 2 3 4 5 6 7 Strongly agree	27. If it all depends on my decision, I'm sure I can get a HPV vaccination. Strongly diasgree 1 2 3 4 5 6 7 Strongly agree	1	2	3	4	
28. How confident are you that you could overcome obstacles that prevent you from obtaining the HPV vaccine? Not at all confident 1 2 3 4 5 6 7 Completely confident	28. You're just that you can overcome the barriers that prevent you from getting a HPV vaccination Not at all confident 1 2 3 4 5 6 7 Completely confident	1	2	3	4	
29. How confident are you that you could obatin HPV vaccine if you wanted to do so? Not at all confident 1 2 3 4 5 6 7 Completely confident	29. You are sure that you will be able to get a HPV vaccination if you need it Not at all confident 1 2 3 4 5 6 7 Completely confident	1	2	3	4	
30. If I don't obtain HPV vaccine, I think my chances of getting a gential HPV infection sometime in the future would be 1 : Almost zero 2 : Very small 3 : Small 4 : Moderate 5 : Large 6 : Very large 7 : Almost certain	30. If I did not receive the HPV vaccination, I think my chances of getting HPV infection in the future. 1 : Almost zero 2 : Very small 3 : Small 4 : Moderate 5 : Large 6 : Very large 7 : Almost certain	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
31. If I don't obtain HPV vaccine, I think my chances of getting cervical cancer sometime in the future would be 1 : Almost zero 2 : Very small 3 : Small 4 : Moderate 5 : Large 6 : Very large 7 : Almost certain	31. If I did not receive the HPV vaccination I think my chances of getting cervical cancer in the future. 1 : Almost zero 2 : Very small 3 : Small 4 : Moderate 5 : Large 6 : Very large 7 : Almost certain	1	2	3	4	
32. If I don't obtain HPV vaccine, I think my chances of getting genital warts sometime in the future would be 1 : Almost zero 2 : Very small 3 : Small 4 : Moderate 5 : Large 6 : Very large 7 : Almost certain	32. If I did not receive the HPV vaccination I think my chances of suffering from genital wart in the future. 1 : Almost zero 2 : Very small 3 : Small 4 : Moderate 5 : Large 6 : Very large 7 : Almost certain	1	2	3	4	
33. Being vaccinated against HPV leads to certainty about my health status. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	33. Getting an HPV vaccine gives me confidence about my health. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
34. Being vaccinated against HPV would be extremely effective in protecting me against genital wart. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	34. Getting the HPV vaccine is most effective in protecting me from warts. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	
35. Being vaccinated against HPV would be extremely effective in protecting me against cervical cancer. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	35. Getting an HPV vaccine is most effective in protecting me against cervical cancer. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	
36. Being vaccinated against HPV would be extremely effective in protecting me against HPV. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	36. Getting HPV vaccines is most effective in protecting me against HPV. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
37. The HPV vaccine cost too much. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	37. HPV vaccine are very expensive. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	
38. I do not have money for vaccination. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	38. I have no money for vaccination. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	
39. My university health insurance/ universal health coverage do not allowed me to receive the vaccine. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	39. My university health / universal health card does not cover to get vaccination. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
40. Lacked of supplemental university health insurance coverage or beyond services covered by the universal health coverage. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	40. I lack of coverage from university health insurance and universal health insurance. 1 : Strongly Agree 2 : Agree 3 : Somewhat agree 4 : Neither agree or disagree 5 : Somewhat disagree 6 : Disagree 7 : Strongly disagree	1	2	3	4	
41. Smoking increases risk of cervical cancer.	41. Smoking increases the risk of cervical cancer.	1	2	3	4	
42. HPV infection is contracted by sexual contact.	42. HPV infection is contracted by sex	1	2	3	4	
43. People can transmit HPV to their partner(s) even if they have no symptoms of HPV.	43. We can transmit HPV to partners, although they do not have symptoms of HPV.	1	2	3	4	
44. Having multiple sexual partners increases risk of HPV infection.	44. Many couples are at increased risk for HPV infection.	1	2	3	4	
45. Sex at an early age increases risk of HPV infection.	45. Premature sex increases the risk of HPV infection.	1	2	3	4	
46. Genital warts are caused by HPV infection.	46. Genital wart are caused by HPV infection.	1	2	3	4	
47. Most people with genital HPV have no visible signs or symptoms.	47. Most people with genital HPV infection do not show symptoms.	1	2	3	4	
48. HPV infection can be prevented by vaginal douching after intercourse.	48. HPV infection can be prevented by vaginal douching after sexual intercourse.	1	2	3	4	
49. HPV infection can be treated by antibiotics.	49. HPV infection can be treated by antibiotics.	1	2	3	4	
50. HPV infection can cause cervical cancer.	50. HPV infection can cause cervical cancer.	1	2	3	4	
51. Cervical cancer symptoms commonly present with vaginal discharge or bleeding even in the early stages of disease.	51. Symptoms of cervical cancer are secretion or vaginal bleeding, although it is in the early stages of the disease.	1	2	3	4	
52. Cervical cancer can possibly cause bleeding after sex.	52. Cervical cancer can cause bleeding after sex.	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
53. A Pap smear is one of the measures to prevent cervical cancer by detecting changes in the cervix early before they become cancerous.	53. PAP smear is one of the ways to prevent cervical cancer by screening for cervical changes before becoming cancerous.	1	2	3	4	
54. A Pap smear is only indicated in women with vaginal discharge or bleeding.	54. PAP smear is the only method for women with vaginal discharge or bleeding.	1	2	3	4	
55. Unmarried women are not supposed to have a Pap smear.	55. Unmarried women do not need to have a Pap test.	1	2	3	4	
56. I am willing to obtain HPV vacccination. Strongly Agree 1 2 3 4 5 6 7 Strongly disagree	56. I am willing to get HPV vacccination. Strongly Agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
57. I plan to obtain HPV vaccination. Strongly Agree 1 2 3 4 5 6 7 Strongly disagree	57. I plan to get a cervical cancer vaccine. Strongly Agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
58. I expect to obtain HPV vaccination at some point. Strongly Agree 1 2 3 4 5 6 7 Strongly disagree	58. I intend to get a cervical cancer vaccine. Strongly Agree 1 2 3 4 5 6 7 Strongly disagree	1	2	3	4	
59. What is the best media platform to advertise to you about the HPV vaccine? [1] Facebook [4] Brochure [2] Websites [5] Other, please specify..... [3] Television	59. What is the best media which you have access to get about cervical cancer vaccines? [1] Facebook [4] Brochure [2] Websites [5] Other, please specify..... [3] Television	1	2	3	4	
60. Who do you think would be the reliable educator that can educate you about the HPV vaccine? [1] Doctor [4] Vaccinated woman [2] Lecturer [5] Other, please specify..... [3] Nurse	60. Who do you think would be the credible academic that can educate you about the HPV vaccine? [1] Doctor [4] Vaccinated woman [2] Lecturer [5] Other, please specify..... [3] Nurse	1	2	3	4	

Original version	Back translation version	Rating				Suggestions
61. If you have additional comments, please write down below:	61. If you have any suggestions. Please specify below.	1	2	3	4	
62. What is your sexual orientation? [1] Heterosexual [2] Homosexual [3] Bisexual [4] Other	62. What is your sexual orientation? [1] Heterosexual [2] Homosexual [3] Bisexual [4] Other	1	2	3	4	
63. Have you ever had sexual intercourse? [1] Yes [2] No	63. Have you ever had sex? [1] Yes [2] No	1	2	3	4	
64. How old were you when you had sex for the first time? years old	64. When did you first start sex? _____ years	1	2	3	4	
65. Do you use protection (i.e. condom) during your sexual intercourse? [1] Yes [2] No	65. Do you have protection (like using condoms) during sex? [1] Yes [2] No	1	2	3	4	
66. Have you ever experiencing PAP test? [1] Yes, please specify the result: [2] No	66. Have you ever had a PAP test? [1] Yes, please specify the result: [2] No	1	2	3	4	
67. Do you have a family history of gynecological tumors? [1] Yes, please specify who: [2] No	67. Do you have a family history of gynecological cancer? [1] Yes, please specify who: [2] No	1	2	3	4	
68. Do you have a family history of cervical cancer? [1] Yes, please specify who: [2] No	68. Do you have family history of cervical cancer? [1] Yes, please specify who: [2] No	1	2	3	4	
69. Do you have a history of sexually transmitted infection? [1] Yes, please specify: [2] No	69. Do you have a history of sexually transmitted infections? [3] Yes, please specify: [4] No	1	2	3	4	

Appendix 7 Evaluation of the translation comparison

No.	Modify Items	Prompt Before	Prompt After
1.	8	คุณมีบัตรประกันสุขภาพถ้วนหน้าหรือไม่	คุณมีประกันสุขภาพแบบถ้วนหน้าหรือไม่
2.	9	คุณมีบัตรประกันสุขภาพของมหาวิทยาลัยหรือไม่	คุณมีประกันสุขภาพแบบของมหาวิทยาลัยหรือไม่
3.	12	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น	การได้รับวัคซีนป้องกันมะเร็งปากมดลูกของฉันน่าจะ
4.	13	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น	การได้รับวัคซีนป้องกันมะเร็งปากมดลูกของฉันน่าจะ
5.	14	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น	การได้รับวัคซีนป้องกันมะเร็งปากมดลูกของฉันน่าจะ
6.	15	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น	การได้รับวัคซีนป้องกันมะเร็งปากมดลูกของฉันน่าจะ
7.	16	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น	การได้รับวัคซีนป้องกันมะเร็งปากมดลูกของฉันน่าจะ
8.	17	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น	การได้รับวัคซีนป้องกันมะเร็งปากมดลูกของฉันน่าจะ
9.	25	สำหรับฉันแล้วการรับวัคซีนป้องกันมะเร็งปากมดลูกเป็นสิ่งที่	สำหรับฉันแล้วการรับวัคซีนป้องกันมะเร็งปากมดลูกน่าจะ
10.	26	ความมั่นใจที่คุณจะสามารถรับวัคซีนป้องกันมะเร็งปากมดลูกเป็นอย่างไร?	คุณมีความมั่นใจอย่างไรว่าคุณจะสามารถรับวัคซีนป้องกันมะเร็งปากมดลูกได้
11.	40	ขาดการคุ้มครองของประกันสุขภาพมหาวิทยาลัยหรือนอกเหนือจากสิทธิที่ได้รับจากบัตรประกันสุขภาพถ้วนหน้า	ฉันขาดการคุ้มครองของประกันสุขภาพมหาวิทยาลัยหรือนอกเหนือจากสิทธิที่ได้รับจากบัตรประกันสุขภาพถ้วนหน้า
12.	56	ฉันเต็มใจที่จะรับวัคซีนป้องกันมะเร็งปากมดลูก	ฉันเต็มใจที่จะรับฉันเต็มใจที่จะรับวัคซีนเอชพีวี
13.	57	ฉันวางแผนที่จะรับวัคซีนป้องกันมะเร็งปากมดลูก	ฉันวางแผนที่จะรับวัคซีนเอชพีวี
14.	58	ฉันตั้งใจว่าจะรับวัคซีนป้องกันมะเร็งปากมดลูก	ฉันตั้งใจว่าจะรับวัคซีนเอชพีวี

Appendix 8 Think-aloud instruction and warm up questions

Think Aloud Instruction

We will shortly be beginning a study to learn more about women's attitude to obtain vaccination, subjective norm toward vaccination, perceived behavioral control to obtain vaccination, perceived suceptibility, perceived of vaccine effectiveness, cost of vaccination as well as knowledge of HPV and cervical cancer. The aim of this study is to understand the factors influencing intention to taking HPV vaccination. For this study, we have developed a questionnaire about women's attitude to obtain vaccination, subjective norm toward vaccination, perceived behavioral control to obtain vaccination, perceived suceptibility, perceived of vaccine effectiveness, cost of vaccination as well as knowledge of HPV and cervical cancer and intention to obtain HPV vaccine, which we are trying to change. We want to check that women understand the questions in the way that we meant them. To do this, I am going to ask you to think aloud as you complete the questionnaire. What I mean by 'think aloud' is that I want you to tell me everything you are thinking as you read each question and decide how to answer it. I would like you to talk aloud constantly. I don't want you to plan out what you say or try to explain to me what you are saying. Just act as if you are alone in the room speaking to yourself. If you are silent for any long period of time, I will ask you to talk. Please try to speak as clearly as possible, as I shall be recording you as you speak. Do you understand what I want you to do?

Warm Up Questions

No	Statements and answers
1	I believe that all gynecologists should recommend the vaccine to their patients, whether or not they come from conservative families. **Strongly agree 1 2 3 4 5 Strongly disagree**
2	I would recommend this vaccine for my female college friends whether or not they come from conservative families. **Strongly disagree 1 2 3 4 5 Strongly agree**
3	I believe that the HPV vaccine is different from other marketed vaccines produced by pharmaceutical companies with prime purpose of accumulating profit. **Strongly disagree 1 2 3 4 5 Strongly agree**

Appendix 9 Analysis and evaluation of the think aloud technique

Nature of the problem on each item

Rank	Problematic number	Number of problem/s	Type of problems	Frequency of each type	Participant ID	Issues identified by participants (C/S/P)
1	12	5	Re-read, miss-read or flounder in answering	2	5	S
					6	C
			Questioned sensibleness of question	2	2	S
					5	S
			Problems with the response-scale	1	5	S
2	36	5	Re-read, miss-read or flounder in answering	4	2	S
					4	S
					5	S
					6	S
			Questioned sensibleness of question	1	2	S
3	56	5	Re-read, miss-read or flounder in answering	4	1	C
					2	C
					5	S
					6	S
			Questioned sensibleness of question	1	6	S
4	65	5	Re-read, miss-read or flounder in answering	1	5	S
			Question deemed not applicable to their circumstances	4	1	S
					2	S
					3	S
					5	S

Rank	Problematic number	Number of problem/s	Type of problems	Frequency of each type	Participant	Issues identified by participants (C/S/P)
5	17	4	Re-read, miss-read or flounder in answering	2	2	S
					5	S
			Questioned sensibleness of question	1	2	C
			Problems with the response-scale	1	2	S
6	37	4	Re-read, miss-read or flounder in answering	3	1	C
					4	C
					5	C
			Answered different question from the one that asked or give inconsistent reasoning	1	6	C
7	39	4	Re-read, miss-read or flounder in answering	1	5	S/C
			Answered different question from the one that asked or give inconsistent reasoning	3	1	S/C
					4	S/C
					6	S/C
8	40	4	Re-read, miss-read or flounder in answering	2	1	S/C
					4	C
			Answered different question from the one that asked or give inconsistent reasoning	2	1	S/C
					6	S/C

Rank	Problematic number	Number of problem/s	Type of problems	Frequency of each type	Participant	Issues identified by participants (C/S/P)
9	64	4	Question deemed not applicable to their circumstances	4	1	S
					2	S
					3	S
					5	S
10	13	3	Re-read, miss-read or flounder in answering	1	6	S
			Questioned sensibleness of question	1	5	S
			Problems with the response-scale	1	5	S
11	22	3	Re-read, miss-read or flounder in answering	2	5	C
					6	C
			Problems with the response-scale	1	5	C
12	32	3	Re-read, miss-read or flounder in answering	3	4	C
					5	C
					6	C
13	38	3	Re-read, miss-read or flounder in answering	2	2	C
					4	C
			Answered different question from the one that asked or give inconsistent reasoning	1	6	S/C
14	46	3	Re-read, miss-read or flounder in answering	3	1	C
					4	C
					5	C

Rank	Problematic number	Number of problem/s	Type of problems	Frequency of each type	Participant	Issues identified by participants (C/S/P)
15	48	3	Re-read, miss-read or flounder in answering	2	2	C
					5	C
			Answered different question from the one that asked or give inconsistent reasoning	1	4	C
16	18	2	Re-read, miss-read or flounder in answering	1	6	C
			Question deemed not applicable to their circumstances	1	2	C
17	61	2	Re-read, miss-read or flounder in answering	1	5	S
			Questioned sensibleness of question	1	5	S
18	67	2	Re-read, miss-read or flounder in answering	1	5	C
			Questioned sensibleness of question	1	4	C
19	6	1	Re-read, miss-read or flounder in answering	1	6	S
20	8	1	Re-read, miss-read or flounder in answering	1	2	C
21	14	1	Re-read, miss-read or flounder in answering	1	2	S/C

Rank	Problematic number	Number of problem/s	Type of problems	Frequency of each type	Participant	Issues identified by participants (C/S/P)
22	20	1	Re-read, miss-read or flounder in answering	1	6	C
23	21	1	Re-read, miss-read or flounder in answering	1	6	C
24	23	1	Answered different question from the one that asked or give inconsistent reasoning	1	6	C
25	66	1	Re-read, miss-read or flounder in answering	1	1	C

Note. C= Cognitive problem; S= Structural problem; P= Potentially problematic either cognitive or structure

Evaluation of each problems

Rank	Problematic Items	Phrase Before	Phrase After
1	12	การได้รับวัคซีน ป้องกันมะเร็งปากมดลูก ของนันน่าจะ... ความคิดที่ดี 1 2 3 4 5 6 7 ความคิดที่ไม่ดี	ฉันคิดว่าการได้รับวัคซีน ป้องกันมะเร็งปากมดลูก เป็น... เป็นความคิดที่ดี1 2 3 4 5 6 7 เป็นความคิดที่ไม่ดี
2	36	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะมีประสิท ธิภาพมากที่สุดในการปกป้องฉันต่อต้านเชื้อเอชพีวี	การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีจะ มีประสิทธิภาพมากที่สุดในการปกป้องฉันจากเชื้อเอชพีวี
3	56	ฉันเต็มใจที่จะรับฉันเต็มใจที่จะรับวัคซีนเอชพีวี	ฉันเต็มใจที่จะรับวัคซีนเอชพีวี
4	65	คุณมีการป้องกัน (เช่นใช้ถุงยางอนามัย) ระหว่างมี เพศสัมพันธ์ หรือไม่ [1] มี [2] ไม่มี	คุณเคยมีเพศสัมพันธ์หรือไม่ [1] เคย [2] ไม่เคย ถ้าตอบ [1] มี กรุณาทำต่อจนจบแบบสอบถาม คุณมีการป้องกัน) เช่น ใช้ถุงยางอนามัย (ระหว่างมีเพศสัมพันธ์ หรือไม่ [1]มี [2]ไม่มี
5	17	การได้รับวัคซีน ป้องกันมะเร็งปากมดลูก ของนันน่าจะ... สิ่งที่ไม่พึงพอใจสำหรับฉัน 1 2 3 4 5 6 7 สิ่งที่พึงพอใจ สำหรับฉัน	ฉันคิดว่าการได้รับวัคซีน ป้องกันมะเร็งปากมดลูก เป็น... เป็นสิ่งที่ไม่น่าพึงพอใจ1 2 3 4 5 6 7 เป็นสิ่งที่น่าพึงพอใจ
6	37	วัคซีนป้องกันมะเร็งปากมดลูกราคาแพงมาก	วัคซีนป้องกันมะเร็งปากมดลูกในประเทศไทยราคาประมาณ 9000 บาท ฉันไม่ได้รับวัคซีนเนื่องจากวัคซีนป้องกันมะเร็งปากมดลูกราคา แพงมาก
7	39	ประกันสุขภาพของมหาวิทยาลัย/ บัตรประกันสุขภาพถ้วนหน้าของฉันไม่อนุญาตให้ฉันรับ วัคซีน	ฉันไม่ได้รับวัคซีนเนื่องจากประกันสุขภาพของมหาวิทยาลัย/ บัตรประกันสุขภาพถ้วนหน้าของฉันไม่อนุญาตให้ฉันรับวัคซีน

Rank	Problematic Items	Phrase Before	Phrase After
8	40	ฉันขาดการคุ้มครองของประกันสุขภาพมหาวิทยาลัยหรือนอกเหนือจากสิทธิที่ได้รับจากบัตรประกันสุขภาพถ้วนหน้า	ฉันไม่ได้รับวัคซีนเนื่องจากฉันขาดการคุ้มครองของประกันสุขภาพมหา วิทยาลัยหรือนอกเหนือจากสิทธิที่ได้รับจากบัตรประกันสุขภาพถ้วนหน้า
9	64	คุณเริ่มมีเพศสัมพันธ์ครั้งแรกเมื่ออายุเท่าไหร่ _____ ปี	คุณเคยมีเพศสัมพันธ์หรือไม่ [1]เคย [2]ไม่เคย ถ้าตอบ [1] มี กรุณาทำต่อจนจบแบบสอบถาม คุณเริ่มมีเพศสัมพันธ์ครั้งแรกเมื่ออายุเท่าไหร่ _____ ปี
10	13	การได้รับวัคซีน ป้องกันมะเร็งปากมดลูก ของนันน่าจะ..... ที่นิยม 1 2 3 4 5 6 7 ที่ไม่นิยม	ฉันคิดว่าการได้รับวัคซีน ป้องกันมะเร็งปากมดลูก เป็น... ชื่นชอบ 1 2 3 4 5 6 7 ไม่ชื่นชอบ
11	22	เพื่อนสนิทของฉันเห็นชอบกับการรับวัคซีนป้องกันม ะเร็งปากมดลูกของฉัน	เพื่อนสนิทของฉันเห็นชอบกับการรับวัคซีนป้องกันมะ เร็งปากมดลูกของฉัน ฉันจะเห็นด้วยกับเขา
12	32	ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูกฉันคิดว่าโอกาสของฉันที่จะติดเชื้อหูดหงอนไก่เกิดขึ้นได้ในอนาคต	ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูกฉันคิดว่าโอก าสของฉันที่จะติดเชื้อหูดหงอนไก่ (หูดที่อวัยวะเพศ)เกิดขึ้นได้ในอนาคต
13	38	ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูก ฉันคิดว่าโอกาสของฉันที่จะติดเชื้อหูดหงอนไก่เกิดขึ้นได้ในอนาคต	วัคซีนป้องกันมะเร็งปากมดลูกในประเทศไทยราคาประมาณ 9000 บาท ถ้าฉันไม่ได้รับวัคซีนป้องกันมะเร็งปากมดลูก ฉันคิดว่าโอกาสของฉันที่จะติดเชื้อหูดหงอนไก่เกิดขึ้นได้ในอนาคต
14	46	คนส่วนใหญ่ที่มีการติดเชื้อเอชพีวีบริเวณอวัยวะเพศจะ ไม่แสดงอาการให้เห็น	คำถามเกี่ยวกับการรับรู้เรื่อง เอชพีวีและวัคซีนเอชพีวี 1. คุณเคยได้ยินเกี่ยวกับเชื้อเอชพีวี หรือไม่ [1] เคย [2] ไม่เคย 2. คุณเคยได้เกี่ยวกับวัคซีนเอชพีวี หรือไม่ [1] เคย [2] ไม่เคย

Rank	Problematic Items	Phrase Before	Phrase After
15	48	การติดเชื้อเอชพีวีสามารถรักษาด้วยยาฆ่าเชื้อ	คำถามเกี่ยวกับการรับรู้เรื่อง เอชพีวีและวัคซีนเอชพีวี 1. คุณเคยได้ยินเกี่ยวกับเชื้อเอชพีวี หรือไม่ [1] เคย [2] ไม่เคย 2. คุณเคยได้เกี่ยวกับวัคซีนเอชพีวี หรือไม่ [1] เคย [2] ไม่เคย
16	18	แฟนของฉันไม่เห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน	แฟนของฉันไม่เห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันฉันจะเห็นด้วยกับเขา
17	61	หากคุณมีข้อเสนอแนะ โปรดระบุด้านล่างนี้	หากคุณมีข้อเสนอแนะวิธีที่จะส่งเสริมและให้ข้อมูลเกี่ยวกับวัคซีนเอชพีวี โปรดระบุด้านล่างนี้
18	67	คุณมีประวัติครอบครัวเป็นมะเร็งทางนรีเวชหรือไม่	คุณมีประวัติครอบครัวเป็นมะเร็งทางนรีเวชหรือไม่ตัวอย่างเช่น มะเร็งมดลูก มะเร็งรังไข่ มะเร็งปากมดลูก มะเร็งที่อวัยวะเพศ มะเร็งท่อรังไข่
19	6	การศึกษาขั้นสูง โปรดระบุสาขาเกี่ยวข้องหรือไม่เกี่ยวข้องกับการแพทย์:	ปริญญาโท สาขาเกี่ยวข้องกับการแพทย์: สาขาไม่เกี่ยวข้องกับการแพทย์: ปริญญาเอก สาขาเกี่ยวข้องกับการแพทย์: สาขาไม่เกี่ยวข้องกับการแพทย์:
20	8	คุณมีประกันสุขภาพแบบถ้วนหน้าหรือไม่	คุณมีประกันสุขภาพแบบถ้วนหน้า (โครงการ 30 บาทรักษาทุกโรค) หรือไม่
21	14	การรับวัคซีนป้องกันมะเร็งปากมดลูกของฉันเป็น...	ฉันคิดว่าการได้รับวัคซีน ป้องกันมะเร็งปากมดลูก เป็น...
22	20	ที่ต้องการ1 2 3 4 5 6 7 ที่ไม่ต้องการ หมอประจำตัวของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ไม่เห็นด้วยมากที่สุด1 2 3 4 5 6 7 เห็นด้วยมากที่สุด	เป็นสิ่งที่ฉันต้องการ1 2 3 4 5 6 7 เป็นสิ่งที่ฉันไม่ต้องการ หมอประจำตัวของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ฉันจะเห็นด้วยกับเขา เห็นด้วยมากที่สุด1 2 3 4 5 6 7 ไม่เห็นด้วยมากที่สุด

Rank	Problematic Items	Phrase Before	Phrase After
23	21	พยาบาลสาธารณสุขของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ไม่เห็นด้วยมากที่สุด1 2 3 4 5 6 7 เห็นด้วยมากที่สุด	พยาบาลสาธารณสุขของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ฉันจะเห็นด้วยกับเขา เห็นด้วยมากที่สุด1 2 3 4 5 6 7 ไม่เห็นด้วยมากที่สุด
24	23	คุณครูของฉันไม่เห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน	คุณครูของฉันไม่เห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ฉันจะเห็นด้วยกับเขา
25	66	คุณเคยได้รับการตรวจแปปสเมียร์	คุณเคยได้รับการตรวจคัดกรองมะเร็งปากมดลูกด้วยวิธีแปปสเมียร์
26	15	การได้รับวัคซีน ป้องกันมะเร็งปากมดลูก ของนันน่าจะ... อันตราย1 2 3 4 5 6 7 ประโยชน์	ฉันคิดว่าการได้รับวัคซีน ป้องกันมะเร็งปากมดลูก เป็น... เป็นอันตราย1 2 3 4 5 6 7 เป็นประโยชน์
27	16	การได้รับวัคซีน ป้องกันมะเร็งปากมดลูก ของนันน่าจะ... ไม่คุ้มค่า1 2 3 4 5 6 7 คุ้มค่า	ฉันคิดว่าการได้รับวัคซีน ป้องกันมะเร็งปากมดลูก เป็น... เป็นสิ่งที่ไม่คุ้มค่า 1 2 3 4 5 6 7 เป็นสิ่งที่คุ้มค่า
28	19	พ่อแม่ของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ไม่เห็นด้วยมากที่สุด1 2 3 4 5 6 7 เห็นด้วยมากที่สุด	พ่อแม่ของฉันเห็นชอบกับการรับวัคซีนป้องกันมะเร็งปากมดลูกของฉัน ฉันจะเห็นด้วยกับเขา เห็นด้วยมากที่สุด 1 2 3 4 5 6 7 ไม่เห็นด้วยมากที่สุด

Appendix 10 Content validity instructions and assessment form

Name of Reviewer:_____ Position:_____

INSTRUCTIONS: This measure is designed to evaluate the content validity of "Factors Influencing Intention to Obtain HPV Vaccine in Young Thai College Women Questionnaire". Please rate each item as follows:

1. Please rate the level of relevance of item in measuring the aligned construct on a scale of 1-4, with 4 being the most relevant.
   1 means item is not relevant
   2 means item is somewhat relevant relevant
   3 means item is quite relevant
   4 means item is highly relevant

2. Please rate the redudancy of the item in measuring the aligned construct on a scale of 1-2, with 1 being redundant to measure the construct, vice versa. Space is provided for you to comment on the item or suggest revisions.
   1 means item is redundant
   2 means item is not redundant

3. Please rate the level of clarity for each item on a scale of 1-2, with 1 being not clear, vice versa. Space is provided for you to comment on the item or suggest revisions.
   1 means item is not clear
   2 means item is clear

4. Space is provided for you to comment on the item or suggest revisions.

Name of the Questionnaire: HPV and HPV vaccine awareness

Construct 1: "HPV and HPV vaccine awareness"					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
คำถามเกี่ยวกับการรับรู้เรื่องเอชพีวีและวัคซีนเอชพีวี	C1Q1: คุณเคยได้ยินเกี่ยวกับเชื้อเอชพีวี หรือไม่	1 2 3 4	1 2	1 2	
	C1Q2: คุณเคยได้เกี่ยวกับวัคซีนป้อนกันมะเร็งปากมดลูก หรือไม่	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Attitude to Obtain HPV Vaccination Questionnaire

Construct 2: "Attitude to Obtain HPV Vaccination"					
Construct (i.e, "big idea to measure")	**Item measuring construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
ทัศนคติในการรับวัคซีนป้องกันมะเร็งปากมดลูก	C2Q1: ฉันคิดว่าการได้รับวัคซีนฯ เป็นความคิดที่ดี	1 2 3 4	1 2	1 2	
	C2Q2: ฉันคิดว่าการได้รับวัคซีนฯ เป็นสิ่งที่ควรปฏิบัติ	1 2 3 4	1 2	1 2	
	C2Q3: ฉันคิดว่าฉันต้องการรับวัคซีนฯ	1 2 3 4	1 2	1 2	
	C2Q4: ฉันคิดว่าการได้รับวัคซีนฯ นั้นปลอดภัย	1 2 3 4	1 2	1 2	
	C2Q5: ฉันคิดว่าการได้รับวัคซีนฯ นั้นมีคุณประโยชน์	1 2 3 4	1 2	1 2	
	C2Q6: ฉันพึงพอใจที่จะรับวัคซีนฯ	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Subjective Norm to Obtain HPV Vaccination Questionnaire

Construct 3: "Subjective Norm to Obtain HPV Vaccination"					
Construct (i.e, "big idea to measure")	**Item measuring construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
การคล้อยตามกลุ่มในการได้รับวัคซีนป้องกันมะเร็งปากมดลูก	C3Q1: ถ้าแฟนของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	1 2 3 4	1 2	1 2	
	C3Q2: ถ้าพ่อแม่ของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	1 2 3 4	1 2	1 2	
	C3Q3: ถ้าแพทย์ของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	1 2 3 4	1 2	1 2	
	C3Q4: ถ้าพยาบาลสาธารณสุขของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	1 2 3 4	1 2	1 2	
	C3Q5: ถ้าเพื่อนสนิทของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	1 2 3 4	1 2	1 2	
	C3Q6: ถ้าคุณครูของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Perceived Behavioral Control to Obtain HPV Vaccination Questionnaire

Construct 4: "Perceived Behavioral Control to Obtain HPV Vaccination"					
Construct (i.e, "big idea to measure")	**Item measuring construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
การรับรู้การควบคุมพฤติกรรมในการรับวัคซีนป้องกันมะเร็งปากมดลูก	C4Q1: ฉันคิดว่าฉันมีความสามารถที่จะรับวัคซีนฯได้	1 2 3 4	1 2	1 2	
	C4Q2: การได้รับวัคซีนฯ เป็นสิ่งที่ยุ่งยาก	1 2 3 4	1 2	1 2	
	C4Q3: ฉันมั่นใจว่าสามารถรับวัคซีนฯได้	1 2 3 4	1 2	1 2	
	C4Q4: ฉันสามารถตัดสินใจด้วยตัวเองว่าจะสามารถรับวัคซีนฯได้	1 2 3 4	1 2	1 2	
	C4Q5: ฉันมั่นใจว่าจะสามารถฝ่าฟันอุปสรรคในการรับวัคซีนฯได้	1 2 3 4	1 2	1 2	
	C4Q6: ฉันมั่นใจว่าจะสามารถรับวัคซีนฯได้เมื่อต้องการ	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Perceived Susceptibility of of not obtaining HPV vaccination Questionnaire

Construct 5: "Perceived Susceptibility of of not obtaining HPV vaccination"					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
การรับรู้โอกาสเสี่ยงของการไม่รับวัคซีนเอชพีวี	C5Q1:ถ้าฉันไม่ได้รับวัคซีนฯ ฉันคิดว่าจะมีโอกาสที่จะติดเชื้อไวรัสได้ในอนาคต	1 2 3 4	1 2	1 2	
	C5Q2:ถ้าฉันไม่ได้รับวัคซีนฯ ฉันคิดว่าจะมีโอกาสที่จะเป็นมะเร็งปากมดลูกได้ในอนาคต	1 2 3 4	1 2	1 2	
	C5Q3:ถ้าฉันไม่ได้รับวัคซีนฯ ฉันคิดว่าจะมีโอกาสติดเชื้อหูดหงอนไก่ ได้ในอนาคต (หูดที่บริเวณอวัยวะเพศ)	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Perceived of vaccine effectiveness Questionnaire

Construct 6: "Perceived of vaccine effectiveness"					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
การรับรู้ประสิทธิผลของการรับวัคซีนเอชพีวี	**C6Q1:** การได้รับวัคซีนฯ ทำให้ฉันมั่นใจในสุขภาพของฉัน	1 2 3 4	1 2	1 2	
	C6Q2: การได้รับการฉีดวัคซีนต้านเชื้อเอชพีวีมีประสิทธิภาพดีในการปกป้องกันโรคหูดหงอนไก่	1 2 3 4	1 2	1 2	
	C6Q3: การรับวัคซีนฯ มีประสิทธิภาพดีที่สุดในการป้องกันโรคมะเร็งปากมดลูก	1 2 3 4	1 2	1 2	
	C6Q4: การได้รับวัคซีนฯ จะมีประสิทธิภาพในการป้องกันการติดเชื้อไวรัสมะเร็งปากมดลูก	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Cost of HPV Vaccination Questionnaire

Construct 7: "Cost of HPV Vaccination"					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
ค่าใช้จ่ายของการรับวัคซีน ฯ	C7Q1: ฉันไม่ได้รับวัคซีนเนื่องจากวัคซีนฯ มีราคาแพงเกินไป	1 2 3 4	1 2	1 2	
	C7Q2: ฉันไม่ได้รับวัคซีนเนื่องจากฉันไม่มีเงินเพียงพอสำหรับฉีดวัคซีน	1 2 3 4	1 2	1 2	
	C7Q3: ฉันไม่ได้รับวัคซีนเนื่องจากประกันสุขภาพของมหาวิทยาลัยบัตรประกันสุขภาพถ้วนหน้าไม่ครอบคลุมสิทธิ/การฉีดวัคซีน	1 2 3 4	1 2	1 2	
	C7Q4: ฉันไม่ได้รับวัคซีนเนื่องจากฉันขาดการคุ้มครองของประกันสุขภาพของมหาวิทยาลัยหรือนอกเหนือจากสิทธิที่ได้รับจากบัตรประกันสุขภาพถ้วนหน้า	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Knowledge of HPV and Cervical Cancer Questionnaire

Construct 8: "<u>Knowledge of HPV and cervical cancer</u>"					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
ความรู้เกี่ยวกับเชื้อเอชพีวีและมะเร็งปากมดลูก	C8Q1: เชื้อไวรัสเอชพีวี ติดต่อได้ทางเพศสัมพันธ์	1 2 3 4	1 2	1 2	
	C8Q2: เชื้อไวรัสเอชพีวีสามารถแพร่ไปยังคู่นอนได้ ถึงแม้ว่าจะไม่มีอาการของโรค	1 2 3 4	1 2	1 2	
	C8Q3: การมีคู่นอนหลายคนเพิ่มความเสี่ยงต่อการติดเชื้อเอชพีวี	1 2 3 4	1 2	1 2	
	C8Q4: การมีเพศสัมพันธ์ก่อนวัยอันควรเพิ่มความเสี่ยงต่อการติดเชื้อเอชพีวี	1 2 3 4	1 2	1 2	
	C8Q5: การติดเชื้อไวรัสเอชพีวีเป็นสาเหตุให้เกิดโรคหูดหงอนไก่	1 2 3 4	1 2	1 2	
	C8Q6: การติดเชื้อเอชพีวีบริเวณอวัยวะเพศจะไม่แสดงอาการ	1 2 3 4	1 2	1 2	
	C8Q7: การติดเชื้อเอชพีวีสามารถป้องกันได้โดยการสวนล้างช่องคลอดหลังจากมีเพศสัมพันธ์	1 2 3 4	1 2	1 2	
	C8Q8: การติดเชื้อเอชพีวีสามารถรักษาด้วยยาฆ่าเชื้อ	1 2 3 4	1 2	1 2	
	C8Q9: การสูบบุหรี่เพิ่มความเสี่ยงต่อการเป็นมะเร็งปากมดลูก	1 2 3 4	1 2	1 2	
	C8Q10: การติดเชื้อเอชพีวีสามารถก่อให้เกิดมะเร็งปากมดลูก	1 2 3 4	1 2	1 2	

Construct 8: "Knowledge of HPV and cervical cancer"(Cont')					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
ความรู้เกี่ยวกับเชื้อเอชพีวีและมะเร็งปากมดลูก	C8Q11: โดยทั่วไปมะเร็งปากมดลูกมีอาการตกขาวหรือเลือดออกทางช่องคลอด แม้ว่าจะป่วยในระยะแรกก็ตาม	1 2 3 4	1 2	1 2	
	C8Q12: มะเร็งปากมดลูก ทำให้เลือดออกหลังจากมีเพศสัมพันธ์ได้	1 2 3 4	1 2	1 2	
	C8Q13: การตรวจแปปสเมียร์เป็นวิธีการในการป้องกันมะเร็งปากมดลูก	1 2 3 4	1 2	1 2	
	C8Q14: การตรวจแปปสเมียร์ ควรทำเฉพาะในผู้หญิงที่มีสิ่งคัดหลังหรือเลือดออกทางช่องคลอดเท่านั้น	1 2 3 4	1 2	1 2	
	C8Q15: ผู้หญิงที่ไม่ได้แต่งงานไม่จำเป็นต้องได้รับการตรวจแปปสเมียร์	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Name of the Questionnaire: Intention to Obtain HPV Vaccine Questionnaire

Construct 9: "Intention to Obtain HPV Vaccination"					
Construct (i.e, "big idea to measure")	**Item measuring overarching construct**	**Relevance**	**Redudancy**	**Clarity**	**Comments:**
ความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูก	C9Q1: ฉันตั้งใจที่จะรับวัคซีนฯ	1 2 3 4	1 2	1 2	
	C9Q2: ฉันวางแผนที่จะรับวัคซีนฯ	1 2 3 4	1 2	1 2	

Please answer this following questions:

1. What an additional items would you recommend including to measure the construct? If you have no suggestions, please enter "none."

2. What items would you recommend to be deleted? If you have no suggestions, please enter "none."

Other suggestions:

Appendix 11 Demographic characteristics of the participants in the pilot study (N=30)

Demographic Characteristics	n	%
Age in year		
19	14	46.67
20	15	50.00
23	1	3.33
Religion		
Buddhist	23	76.67
Muslim	7	23.33
Family income in THB		
<15,000	7	23.33
15,000-19,999	8	26.67
20,000-29,999	10	33.33
30,000-39,999	1	3.33
40,000-49,999	0	0
≥50,000	3	10.00
Personal income from family in THB		
<6,300	26	86.67
6,300 – 9,199	2	6.67
9,200 – 13, 799	1	3.33
≥13,800	1	3.33
Father' occupation		
Business owner	3	10.00
Company employer	3	10.00
Farmer/ Fisherman	10	33.33
Govermental employer	4	13.33
Laborer	7	23.33
Other	3	10.00
Mother' occupation		
Business owner	5	16.67
Company employer	1	3.33

Demographic Characteristics (Continued)	n	%
Farmer/ Fisherman	8	26.67
Govermental employer	3	10.00
Housewife	3	10.00
Laborer	5	16.67
Other	5	16.67
Father's educational background		
Senior high school	17	56.67
Vocational/ Technical certificate	7	23.33
Bachelor's degree	3	10.00
Master's degree	1	3.33
Other	2	6.67
Mother's educational background		
Senior highschool	19	63.33
Vocational/ Technical certificate	3	10.00
Bachelor's degree	5	16.67
Other	3	10.00
Health insurance status		
Yes	16	53.33
No	14	46.67
Universal health coverage status		
Yes	25	83.33
No	5	16.67
University health coverage status		
Yes	26	86.67
No	4	13.33
Relationship status		
Have a partner	2	6.67
Single	28	93.33

Demographic Characteristics (Continued)	n	%
Smoking history		
Yes	1	3.33
No	29	96.67
Pap smear history		
Yes	0	0
No	30	100.00
Family history of gynecology tumor		
Yes	2	6.67
No	28	93.33
Family history of cervical cancer		
Yes	0	0
No	30	100

Demographic Characteristics **(Continued)**	n	%
Sexual orientation		
Heterosexual	25	83.33
Homosexual	1	3.33
Bisexual	3	10.00
Other	1	3.33
Sexual experience		
Yes	2	6.67
No	28	93.33
Age at first sex*		
19	1	3.33
20	1	3.33
History of condom use*		
Yes	2	100.00
No	0	0
History of birthcontrol pills*		
Yes	1	50.00
No	1	50.00
History of STI*		
Yes	0	0
No	2	100.00

*N_1= 2

Appendix 12 Reliability analysis (Cronbach's alpha coefficient) of the questionnaire in the pilot study (N=30)

Construct 1: Attitude to obtain HPV vaccination

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ATT 1	29.3333	0.756	0.872	0.924
ATT 2	29.4000	0.736	0.867	0.926
ATT 3	30.1667	0.842	0.928	0.911
ATT 4	30.0667	0.779	0.722	0.919
ATT 5	29.7333	0.840	0.746	0.911
ATT 6	30.1333	0.877	0.936	0.906

Note. ATT= Attitude; Mean= 35.77 (*SD*= 6.08)
Reliability coefficient of attitude to obtain HPV vaccination = 0.93

Construct 2: Subjective norm to obtain HPV vaccination

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SN 1	24.9000	0.457	0.582	0.874
SN 2	25.3333	0.684	0.642	0.841
SN 3	27.1000	0.672	0.907	0.856
SN 4	26.7667	0.751	0.910	0.827
SN 5	25.5000	0.761	0.974	0.831
SN 6	25.5667	0.786	0.974	0.827

Note. SN= Subjective norm; Mean= 31.03 (*SD*= 7.95)
Reliability coefficient of attitude to obtain HPV vaccine = 0.87

Construct 3: Perceived behavioral control to obtain HPV vaccination

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PBC 1	19.1333	0.071	0.023	0.894*
PBC 2	18.3667	0.624	0.554	0.743
PBC 3	18.5667	0.761	0.675	0.690
PBC 4	19.0000	0.798	0.808	0.679
PBC 5	18.9333	0.723	0.783	0.703

Note. SN= Perceived behavioral control; Mean= 23.50 (*SD*= 5.83)
Reliability coefficient of attitude to obtain HPV vaccine = 0.79; *= final value for reliability coefficient

Construct 4: Perceived susceptibility of of not obtaining HPV vaccination

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PS 1	7.7333	0.897	0.825	0.837
PS 2	7.7667	0.854	0.789	0.873
PS 3	8.1000	0.770	0.606	0.940

Note. PS= Perceive susceptibility of not obtaining HPV vaccination; Mean= 11.80 (*SD*= 4.68)
Reliability coefficient of attitude to obtain HPV vaccine = 0.92

Construct 5: Perceived of vaccine effectiveness

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PRE 1	16.1333	0.698	0.554	.930
PRE 2	15.7667	0.815	0.675	.881
PRE 3	15.5000	0.865	0.958	.865
PRE 4	15.5000	0.851	0.957	.868

Note. PRE= Perceived of vaccine effectiveness; Mean= 20.97 (*SD*= 4.57)
Reliability coefficient of attitude to obtain HPV vaccine = 0.91

Construct 6: Cost of HPV vaccination

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Cost 1	13.5333	0.680	0.613	.865
Cost 2	13.3667	0.755	0.720	.834
Cost 3	13.0667	0.900	0.898	.782
Cost 4	12.8333	0.629	0.816	.883

Note. Mean= 17.60 (*SD*= 5.16)
Reliability coefficient of attitude to obtain HPV vaccine = 0.88

Construct 7: Knowledge of HPV and cervical cancer

Items	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	KR-20 if Item Deleted
K 3	3.4000	.166	.351	.720
K 4	3.7000	.283	.479	.710
K 7	4.1000	.387	.542	.689
K 8	4.0667	.459	.688	.676
K 9	3.9000	.349	.468	.697
K 10	3.6667	.516	.385	.662
K 13	3.6000	.380	.369	.690
K 14	4.0000	.570	.686	.652
K 15	3.9667	.367	.578	.693

Note. Mean= 4.30 (*SD*= 2.25)
Reliability coefficient of attitude to obtain HPV vaccine = 0.71

Pearson Product-Moment and point biserial correlation coefficients for the constructs in the pilot study (N=30)

	1	2	3	4	5	6	7	8
1. Attitude to obtain HPV vaccination	-							
2. Subjective norm to obtain HPV vaccination	0.312	-						
3. Perceive behavioral control to obtain HPV vaccination	0.138	0.242	-					
4. Perceived susceptibility of not obtaining HPV vaccination	0.468**	0.354	0.502**	-				
5. Perceived of vaccine effectiveness	0.565**	0.203	0.375*	0.562**	-			
6. Cost of HPV vaccination	0.012	0.290	-0.265	-0.259	-0.154	-		
7. Knowledge of HPV and cervical cancer	0.015	0.154	0.281	0.459*	0.132	-0.046	-	
8. Intention to obtain HPV vaccination	0.281	0.416*	0.660**	0.503**	0.532**	-0.282	0.143	-

** $p < 0.01$ level
* $p < 0.05$ level

Construct items, factor loadings and Average Variance Extracted (AVE) in the pilot study (N=30)

Construct and corresponding items	Factor loadings	AVE
Attitude to obtain HPV vaccination		75.13%
1. My obtaining vaccine would be a good idea – Strongly disagree – Strongly agree	0.846	
2. My obtaining vaccine would be favorable – Strongly disagree – Strongly agree	0.830	
3. My obtaining vaccine would be desirable – Strongly disagree – Strongly agree	0.882	
4. My obtaining vaccine would be beneficial – Strongly disagree – Strongly agree	0.845	
5. My obtaining vaccine would be useful – Strongly disagree – Strongly agree	0.889	
6. My obtaining vaccine would be pleasant for me – Strongly disagree – Strongly agree	0.906	
Subjective norm to obtain HPV vaccination		63.33%
1. My boyfriend disapprove of my obtaining vaccine. I would……– Strongly disagree – Strongly agree	0.637	
2. My parents disapprove of my obtaining vaccine. I would……– Strongly disagree – Strongly agree	0.807	
3. My physician disapprove of my obtaining vaccine. I would……– Strongly disagree – Strongly agree	0.735	
4. My public health nurse disapprove of my obtaining vaccine. I would……– Strongly disagree – Strongly agree	0.777	
5. My best friend disapprove of my obtaining vaccine. I would……– Strongly disagree – Strongly agree	0.888	
6. My teacher disapprove of my obtaining vaccine. I would……– Strongly disagree – Strongly agree	0.900	

Construct and corresponding items	Factor loadings	AVE
Perceive behavioral control		55.02%
1. I am confident that I will be able to obtain the vaccine – Strongly disagree – Strongly agree	0.637	
2. If it is entirely up to me, I am confident that I would be able to obtain the vaccine – Strongly disagree – Strongly agree	0.807	
3. I am confident that I could overcome obstacles that prevent me from obtaining the vaccine – Strongly disagree – Strongly agree	0.735	
4. I am confident that I could obtain the vaccine if I wanted to do so – Strongly disagree – Strongly agree	0.777	
Perceived susceptibility of not obtaining HPV vaccination		86.32%
1. If I don't obtain the vaccine, I think I have a chances of getting a genital HPV infection sometime in the future – Strongly disagree – Strongly agree	0.958	
2. If I don't obtain the vaccine, I think I have a chances of getting cervical cancer sometime in the future – Strongly disagree – Strongly agree	0.937	
3. If I don't obtain the vaccine, , I think I have a chances of getting genital warts sometime in the future – Strongly disagree – Strongly agree	0.891	
Perceived of vaccine effectiveness		80.30%
1. Being vaccinated leads to certainty about my health status – Strongly disagree – Strongly agree	0.815	
2. Being vaccinated would be extremely effective in protecting me against genital wart – Strongly disagree – Strongly agree	0.893	
3. Being vaccinated would be extremely effective in protecting me against cervical cancer – Strongly disagree – Strongly agree	0.938	
4. Being vaccinated would be extremely effective in protecting me against virus that cause cervical cancer – Strongly disagree – Strongly agree	0.933	

Construct and corresponding items	Factor loadings	AVE
Cost		73.97%
1. I do not get vaccinate because the vaccine cost too much – Strongly disagree – Strongly agree	0.818	
2. I do not get vaccinate because I do not have money for vaccination – Strongly disagree – Strongly agree	0.867	
3. I do not get vaccinate because my university health insurance/ universal health coverage do not pay the vaccine – Strongly disagree – Strongly agree	0.952	
4. I do not get vaccinate because I lack of the protection of university health insurance – Strongly disagree – Strongly agree	0.795	
Knowledge		36.32%
1. Having multiple sexual partner increases risk of HPV infection. –True – Don't know – False	0.242	
2. Sex at an early age increases risk of HPV infection.–True – Don't know – False	0.172	
3. HPV infection can be prevented by vaginal douching after intercourse.– False	0.740	
4. HPV infection can be treated by antibiotics.–True – Don't know – False	0.814	
5. Smoking increases risk of cervical cancer.–True – Don't know – False	0.251	
6. HPV infection can cause cervical cancer.–True – Don't know – False	0.535	
7. A Pap smear is one of the measures to prevent cervical cancer by detecting changes in the cervix early before they become cancerous. – True – Don't know – False	0.317	
8. A Pap smear is only indicated in women with vaginal discharge or bleeding.–True – Don't know – False	0.845	
9. Unmarried women are not supposed to have a Pap smear .– True – Don't know – False	0.666	

Appendix 13 Thai language version final instrument

เอกสารเชิญชวน

เรียน ท่านผู้เข้าร่วมวิจัย

คณะผู้วิจัย โดยนางสาว Sukmadewi นักศึกษาปริญญาโท และอาจารย์ที่ปรึกษาวิทยานิพนธ์ คณะเภสัชศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ขอเชิญท่านเป็นอาสาสมัครในโครงการวิจัย เรื่อง “ปัจจัยที่ส่งผลต่อความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูกในนักศึกษาหญิงในมหาวิทยาลัย” ขอเชิญชวนท่านเป็นผู้เข้าร่วมวิจัย ขอให้ท่านทำความเข้าใจรายละเอียดตามเอกสารที่ท่านได้รับ หากท่านไม่เข้าใจหรือสงสัยประการใด ท่านสามารถซักถามผู้วิจัย/ผู้ที่ให้ข้อมูลได้ท่านได้อย่างเต็มที่ ไม่ต้องเกรงใจ

จากการศึกษาที่ผ่านมาพบว่าการติดเชื้อไวรัสเอชพีวี เป็นสาเหตุสำคัญของการเกิดมะเร็งปากมดลูก ที่พบว่าเป็นสาเหตอันดับที่สองของการเสียชีวิตในสตรีที่เป็นมะเร็งที่มีอายุระหว่าง 15- 44 ปี ปัจจุบันในประเทศไทย มีวัคซีนป้องกันมะเร็งปากมดลูก 2 ชนิด แนะนำให้ฉีดผู้หญิงอายุ 9-26 ปี เพื่อป้องกันการติดเชื้อไวรัสเอชพีวี การศึกษานี้มีวัตถุประสงค์ เพื่อศึกษาปัจจัยที่มีอิทธิพลต่อความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูกในสตรีวัยเรียน ผลการศึกษาจะทำให้ทราบว่าทัศนคติของผู้หญิงในการรับวัคซีนป้องกันมะเร็งปากมดลูก การคล้อยตามกลุ่ม การรับรู้การควบคุมพฤติกรรมในการรับวัคซีน การรับรู้โอกาสเสี่ยงของการเป็นโรค การรับรู้ประสิทธิผลของการตอบสนอง รายจ่ายของการรับวัคซีน และความรู้เกี่ยวกับเชื้อไวรัสเอชพีวี และโรคมะเร็งปากมดลูก จะส่งผลต่อตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูกหรือไม่

ในการเข้าร่วมวิจัยครั้งนี้ ท่านจะต้องตอบคำถามในแบบสอบถามทั้งหมด 12 ส่วน โดยที่เนื้อหาคำถามจะเกี่ยวกับการรรับรู้เรื่องไวรัสเอชพีวีและวัคซีนฯ ข้อมูลสุขอนามัยทางเพศ ทัศนคติในการรับวัคซีนฯ การคล้อยตามกลุ่มในการรับวัคซีนฯ การรับรู้การควบคุมพฤติกรรมในการรับวัคซีนฯ ป้องกันมะเร็งปากมดลูก การรับรู้โอกาสเสี่ยงของการไม่รับวัคซีนฯ การรับรู้ประสิทธิผลของวัคซีนฯ ค่าใช้จ่ายในการรับวัคซีนฯ รวมถึง ความรู้เรื่องโรค และวัคซีนฯ ความตั้งใจในการรับวัคซีน ฯ

แม้ว่าการเข้าร่วมโครงการวิจัยครั้งนี้จะไม่มีความเสี่ยงใดๆ ท่านสามารถเลือกที่จะเข้าร่วมการวิจัยหรือไม่ก็ได้ หากท่านยินดีเข้าร่วมโครงการวิจัยนี้ ผู้วิจัยจะขอให้ท่านลงชื่อในใบยินยอม ท่านสามารถถอนตัวได้ตลอดเวลาโดยไม่มีผลกระทบใดๆ หรือ ท่านอาจจะปฏิเสธตอบคำถามบางคำถามที่ท่านไม่อยากตอบ และยังอยู่ในการวิจัย ท่านอาจจะยกเลิกการให้ความยินยอมเข้าร่วมการวิจัยเมื่อไหร่ก็ได้ และยุติการมีส่วนร่วมในการวิจัย โดยไม่มีบทลงโทษใดๆ อย่างไรก็ตาม ผู้วิจัยอาจถอนตัวท่านจากการวิจัยครั้งนี้หากมีสถานการณ์ที่จำเป็นให้ต้องปฏิบัติเช่นนั้น

หากท่านมีคำถามเกี่ยวกับการวิจัย โปรดติดต่อผู้วิจัยหลัก คือ นางสาวสุคมาเดวิ หมายเลขโทรศัพท์ 093-759-6733 หรือ ที่ปรึกษาดร.กมลทิพย์ วิวัฒนวงศา 081-541-8058 และหากท่านมีข้อสงสัยเกี่ยวสิทธิในฐานะผู้เข้าร่วมวิจัย หรือในกรณีที่ไม่สามารถติดต่อผู้วิจัยได้ โปรดติดต่อศูนย์จริยธรรมการวิจัยในมนุษย์ สาขาสังคมศาสตร์และพฤติกรรมศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ โทร. 074-286475

นางสาวสุคมาเดวิ

ใบยินยอมเข้าร่วมการวิจัย

ข้าพเจ้า, ผู้ลงนาม,

ชื่อ: .....

ที่อยู่: .....

เบอร์โทรศัพท์: .....

โดยเอกสารฉบับนี้ ขอประกาศว่า

ข้าพเจ้าได้รับการอธิบายเกี่ยวกับการวิจัยหัวข้อ “ปัจจัยที่ส่งผลต่อความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูกในหญิงวัยรุ่นไทยในวิทยาลัย”

ข้าพเจ้าเข้าใจสิ่งที่ได้รับการอธิบายเป็นอย่างดีแล้ว และไม่ได้ถูกบังคับ ข้าพเจ้ายินยอมเข้าร่วมการวิจัย ดังข้อความต่อไปนี้

สมัครใจเข้าร่วมตอบคำถามเพราะความสนใจในการวิจัยนี้

ข้อมูลจากการวิจัยนี้จะถูกเก็บเป็นความลับและนำมาใช้สำหรับวิชาการเท่านั้น

ข้าพเจ้าสามารถถอนตัวจากการศึกษาครั้งนี้ได้ โดยไม่ต้องชี้แจงเหตุผล

ข้อมูลทั้งหมดนี้เป็นความจริง และไม่ได้รับแรงกดดันใดๆ การวิจัยนี้มีประโยชน์สำหรับข้าพเจ้าเนื่องจากเป็นข้อมูลความรู้เกี่ยวกับสุขภาพส่วนบุคคลของข้าพเจ้า

....., ...	....., ...
(.....)	(.....)
...../...../2018	...../...../2018
อาสาสมัคร	ผู้วิจัย

....., ...

(.....)

...../...../2018

พยาน

ส่วนที่ 1 ข้อมูลส่วนบุคคล

โปรดใส่เครื่องหมายถูกต้อง(✓) สำหรับคำตอบของท่าน

1. อายุ .....ปี.....เดือน
2. ศาสนา

   [1] พุทธ [2] คาทอลิก

   [3] ฮินดู [4] มุสลิม

   [5] โปรแตสแตนท์ [6] ไม่มีศาสนา

   [7] อื่นๆ, โปรดระบุ.....
3. รายได้เฉลี่ยต่อเดือนของครอบครัว

   [1] <15,000 [2] 15,000-19,999

   [3] 20,000-29,999 [4] 30,000-39,999

   [5] 40,000-49,999 [6] >50,000
4. คุณได้รับเงินจากครอบครัวของท่านเท่าไหร่ .....บาทเดือน/
5. พ่อแม่ของคุณประกอบอาชีพอะไร

   พ่อ: แม่:

   [1] เจ้าของธุรกิจ [1] แม่บ้าน

   [2] รับราชการ [2] เจ้าของธุรกิจ

   [3] พนักงานบริษัท [3] รับราชการ

   [4] รับจ้าง [4] พนักงานบริษัท

   [5] ชาวสวน/ประมง [5] รับจ้าง

   [6] อื่นๆ โปรดระบุ : ..... [6] ชาวสวน/ประมง

   [7] อื่นๆ โปรดระบุ : .....
6. ระดับการศึกษาสูงสุดของพ่อแม่คุณคือข้อใด

   พ่อ แม่

   [1] มัธยมปลาย [1] มัธยมปลาย

   [2] ปวช/ปวส [2] ปวช/ปวส

   [3] ปริญญาตรี, โปรดระบุ: [3] ปริญญาตรี, โปรดระบุ:

   สาขาเกี่ยวข้องกับการแพทย์: ..... สาขาเกี่ยวข้องกับการแพทย์: .....

   สาขาไม่เกี่ยวข้องกับการแพทย์: ..... สาขาไม่เกี่ยวข้องกับการแพทย์: .....

   [4] ปริญญาโท, โปรดระบุ: [4] ปริญญาโท, โปรดระบุ:

   สาขาเกี่ยวข้องกับการแพทย์: ..... สาขาเกี่ยวข้องกับการแพทย์: .....

   สาขาไม่เกี่ยวข้องกับการแพทย์: ..... สาขาไม่เกี่ยวข้องกับการแพทย์: .....

   [5] ปริญญาเอก, โปรดระบุ: [5] ปริญญาเอก, โปรดระบุ:

   สาขาเกี่ยวข้องกับการแพทย์: ..... สาขาเกี่ยวข้องกับการแพทย์: .....

   สาขาไม่เกี่ยวข้องกับการแพทย์: ..... สาขาไม่เกี่ยวข้องกับการแพทย์: .....

   [6] อื่นๆ โปรดระบุ..... [6] อื่นๆ โปรดระบุ.....

7. คุณมีประกันสุขภาพหรือไม่

   [1] มี

   [2] ไม่มี

8. คุณมีประกันสุขภาพแบบถ้วนหน้า โครงการ)30 บาทรักษาทุกโรคหรือไม่ (
   [1] มี
   [2] ไม่มี
9. คุณมีประกันสุขภาพแบบของมหาวิทยาลัยหรือไม่
   [1] มี
   [2] ไม่มี
10. สถานภาพการสมรสของคุณคืออะไร
   [1] โสด
   [2] มีแฟน
   [3] แต่งงาน
11. คุณมีประวัติสูบบุหรี่หรือไม่
   [1] มี,โปรดระบุจำนวนต่อวัน: .....
   [2] ไม่มี

ส่วนที่ 2 คำถามเกี่ยวกับการรับรู้เรื่องเอชพีวีและวัคซีนป้อนกันมะเร็งปากมดลูก

12. คุณเคยได้ยินเกี่ยวกับเชื้อเอชพีวี หรือไม่
   [1] เคย
   [2] ไม่เคย
13. คุณเคยได้ยินเกี่ยวกับวัคซีนป้องกันมะเร็งปากมดลูกหรือไม่
   [1] เคย
   [2] ไม่เคย

ส่วนที่ 3 ข้อมูลสุขอนามัยทางเพศ

14. คุณเคยได้รับการตรวจคัดกรองมะเร็งปากมดลูกหรือโดยการสอดเครื่องมือในช่องคลอดและเก็บเซลล์มาตรวจ
   [1] เคย, โปรดระบุผลการตรวจ: .....
   [2] ไม่เคย
15. คุณมีประวัติครอบครัวเป็นมะเร็งทางนรีเวชหรือไม่ตัวอย่างเช่น มะเร็งมดลูก มะเร็งรังไข่ มะเร็งที่อวัยวะเพศ มะเร็งท่อรังไข่
   [1] มี, โปรดระบุใคร: .....
   [2] ไม่มี
16. คุณมีประวัติครอบครัวเป็นมะเร็งปากมดลูกหรือไม่
   [1] มี, โปรดระบุใคร: .....
   [2] ไม่มี
17. รสนิยมทางเพศของคุณคืออะไร
   [1] รักต่างเพศ [2] รักเพศเดียวกัน
   [3] รักสองเพศ [4] อื่นๆ

18. คุณเคยมีเพศสัมพันธ์หรือไม่

    [1] เคย

    [2] ไม่เคย

ถ้าตอบ [1] มี กรุณาทำต่อจนจบแบบสอบถาม

19. คุณเริ่มมีเพศสัมพันธ์ครั้งแรกเมื่ออายุเท่าไหร่ปี .....

20. คุณใช้ถุงยางอนามัยระหว่างมีเพศสัมพันธ์ หรือไม่

    [1] ทุกครั้ง

    [2] ไม่ทุกครั้ง

21. คุณเคยใช้ยาคุมกำเนิดหรือไม่

    [1] เคย

    [2] ไม่เคย

22. คุณมีประวัติติดเชื้อทางเพศสัมพันธ์หรือไม่

    [1] มี, โปรดระบุโรค: .....

    [2] ไม่มี

    [3] ไม่แน่ใจ

คุณเคยได้ฉีดวัคซีนป้องกันมะเร็งปากมดลูกหรือไม่

[1] เคย

[2] ไม่แน่ใจ

[3] ไม่เคย

ส่วนที่ 4 แบบสอบถามทัศนคติในการรับวัคซีนป้องกันมะเร็งปากมดลูก

คำชี้แจงความหมายของคำในแบบสอบถาม ได้แก่

1. **เชื้อไวรัส** หมายถึง ไวรัสเอชพีวี
2. **วัคซีนฯ** หมายถึง วัคซีนป้องกันมะเร็งปากมดลูก

กรุณาแสดงความคิดเห็นเกี่ยวกับการรับวัคซีนป้องกันมะเร็งปากมดลูก โดยใช้เครื่องหมายถูกต้องเพื่อระบุคะแนนว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความต่อไปนี้มากน้อยเพียงใด

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	การได้รับวัคซีนฯ เป็นความคิดที่ดี	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	การได้รับวัคซีนฯ เป็นสิ่งที่ควรปฏิบัติ	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
3.	ฉันต้องการรับวัคซีนฯ	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
4.	การได้รับวัคซีนฯ นั้นปลอดภัย	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
5.	การได้รับวัคซีนฯ นั้นมีคุณประโยชน์	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
6.	ฉันพึงพอใจที่จะรับวัคซีนฯ	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 5 แบบสอบถามการคล้อยตามกลุ่มในการได้รับวัคซีนป้องกันมะเร็งปากมดลูก
โปรดระบุคะแนนว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความต่อไปนี้มากน้อยเพียงใด

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	ถ้าแฟนของฉันไม่ชอบให้ฉันรับวัคซีนฯ ฉันจะ.....	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	ถ้าพ่อแม่ของฉันไม่ยินดีกับการรับวัคซีนฯ ของฉัน ฉันจะ.....	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
3.	ถ้าแพทย์ของฉันไม่แนะนำให้ฉันรับวัคซีนฯ ฉันจะ.....	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
4.	ถ้าพยาบาลไม่แนะนำให้ฉันรับวัคซีนฯ ฉันจะ.....	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
5.	ถ้าเพื่อนสนิทของฉันไม่อยากให้ฉันรับวัคซีนฯ ฉันจะ.....	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
6.	ถ้าคุณครูของฉันไม่เห็นชอบกับการรับวัคซีนฯ ฉันจะ.....	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 6 แบบสอบถามการรับรู้การควบคุมพฤติกรรมในการรับวัคซีนป้องกันมะเร็งปากมดลูก
โปรดระบุคะแนนว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความต่อไปนี้มากน้อยเพียงใด

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	ฉันมั่นใจว่าจะไปรับวัคซีนฯได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	ฉันสามารถเลือกรับวัคซีนฯได้ด้วยตัวเอง	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
3.	ฉันสามารถจัดการอุปสรรคต่างๆ เพื่อไปรับวัคซีนฯได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
4.	ฉันสามารถไปรับวัคซีนฯเมื่อไหร่ก็ตามที่ต้องการ	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 7 แบบสอบถามการรับรู้โอกาสเสี่ยงของการไม่รับวัคซีนเอชพีวี

โปรดระบุโอกาสเสี่ยงของการไม่รับวัคซีนเอชพีวีตามการรับรู้ของท่านโดยให้คะแนนจาก 1 ถึง 7 ให้ตรงตามความรู้สึกของท่านมากที่สุด

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	ถ้าฉันไม่ได้รับวัคซีนฯ ฉันมีโอกาสติดเชื้อไวรัสได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	ถ้าฉันไม่ได้รับวัคซีนฯ ฉันมีโอกาสเป็นมะเร็งปากมดลูกได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
3.	ถ้าฉันไม่ได้รับวัคซีนฯ ฉันมีโอกาสติดเชื้อหูดหงอนไก่(หูดที่บริเวณอวัยวะเพศ)ได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 8 แบบสอบถามการรับรู้ประสิทธิผลของการรับวัคซีนเอชพีวี

โปรดระบุความคิดเห็นเกี่ยวกับการรับรู้ประสิทธิภาพของการรับวัคซีนเอชพีวี โดยให้คะแนน 1 ถึง 7

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	การได้รับวัคซีนฯ ทำให้ฉันมั่นใจว่าจะมีสุขภาพดีไม่มีโรค	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	การได้รับวัคซีนฯ จะป้องกันโรคหูดหงอนไก่ได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
3.	การรับวัคซีนฯ จะป้องกันโรคมะเร็งปากมดลูกได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
4.	การได้รับวัคซีนฯ จะป้องกันการติดเชื้อไวรัสที่ทำให้เป็นมะเร็งปากมดลูกได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 9 แบบสอบถามค่าใช้จ่ายของการรับวัคซีนฯ

ปัจจัยต่างๆ ดังต่อไปนี้ที่เป็นอุปสรรคหรือปัญหาทำให้ท่านจากการรับวัคซีนป้องกันมะเร็งปากมดลูก มากน้อยเพียงใด

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	ฉันไม่รับวัคซีนเพราะวัคซีนฯ มีราคาแพงเกินไป	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	ฉันไม่รับวัคซีนเพราะฉันไม่มีเงินพอที่จะไปฉีดวัคซีนได้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
3.	ฉันไม่รับวัคซีนเพราะหน่วยประกันสุขภาพของมหาวิทยาลัย/บัตรประกันสุขภาพถ้วนหน้าไม่จ่ายค่าวัคซีนให้	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
4.	ฉันไม่รับวัคซีนเพราะฉันขาดการคุ้มครองของประกันสุขภาพของมหาวิทยาลัย	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 10 แบบสอบถามความรู้เกี่ยวกับเชื้อเอชพีวีและมะเร็งปากมดลูก

โปรดตอบคำถามต่อไปนี้ตามความคิดเห็นที่แท้จริงของท่าน

ข้อ	ข้อความ	คำตอบ		
		ถูก	ไม่มั่นใจ	ผิด
1.	การมีคู่นอนหลายคนเพิ่มความเสี่ยงต่อการติดเชื้อเอชพีวี			
2.	การมีเพศสัมพันธ์ก่อนวัยอันควรเพิ่มความเสี่ยงต่อการติดเชื้อเอชพีวี			
3.	การติดเชื้อเอชพีวีสามารถป้องกันได้โดยการสวนล้างช่องคลอดหลังจากมีเพศสัมพันธ์			
4.	การติดเชื้อเอชพีวีสามารถรักษาด้วยยาฆ่าเชื้อแบคทีเรีย			
5.	การสูบบุหรี่เพิ่มความเสี่ยงต่อการเป็นมะเร็งปากมดลูก			
6.	การติดเชื้อเอชพีวีสามารถก่อให้เกิดมะเร็งปากมดลูก			
7.	การตรวจมะเร็งปากมดลูกป้องกันโรคมะเร็งปากมดลูก			
8.	การตรวจมะเร็งปากมดลูก ทำเฉพาะในผู้หญิงที่มีสิ่งคัดหลังหรือเลือดออกทางช่องคลอดเท่านั้น			
9.	ผู้หญิงที่ยังไม่เคยมีเพศสัมพันธ์ไม่จำเป็นต้องได้รับการตรวจมะเร็งปากมดลูกมดลูกโดยวิธีแบบสเมียร์			

ส่วนที่ 11 แบบสอบถามความตั้งใจในการรับวัคซีนป้องกันมะเร็งปากมดลูก

โปรดระบุว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความเหล่านี้มากน้อยเพียงใด

โดย 1 หมายถึง ไม่เห็นด้วยมากที่สุด ถึง คะแนน 7 เห็นด้วยมากที่สุด

ข้อ	ข้อความ	ข้อความและคำตอบ								
1.	ฉันตั้งใจที่จะรับวัคซีนฯ	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด
2.	ฉันวางแผนที่จะรับวัคซีนฯ	ไม่เห็นด้วยมากที่สุด	1	2	3	4	5	6	7	เห็นด้วยมากที่สุด

ส่วนที่ 12 ข้อมูลอื่น ๆ เกี่ยวกับการเข้าถึงวัคซีน

1. สื่อที่ดีที่สุดที่ทำให้คุณรับทราบข้อมูลเกี่ยวกับวัคซีนป้องกันมะเร็งปากมดลูกได้คือข้อใดบ้าง) ตอบได้มากกว่า 1 ข้อ(

   [1] เฟสบุค [2] เว็บไซต์
   [3] โทรทัศน์ [4] แผ่นพับ
   [5] อื่นๆ, โปรดระบุ.....

2. คุณคิดว่า ใครบ้าง ที่จะสามารถให้ความรู้เกี่ยวกับวัคซีนป้องกันมะเร็งปากมดลูกแก่ท่านได้ ได้มากกว่าตอบ) 1 ข้อ(

   [1] แพทย์ [2] อาจารย์
   [3] พยาบาล [4] ผู้หญิงที่เคยได้รับวัคซีน
   [5] อื่นๆ, โปรดระบุ.....

3. กรุณาให้ข้อเสนอแนะวิธีการส่งเสริมการรับวัคซีนและการเผยแพร่ข้อมูลเกี่ยวกับวัคซีนที่ดีในความเห็นของท่าน.....
   .....
   .....
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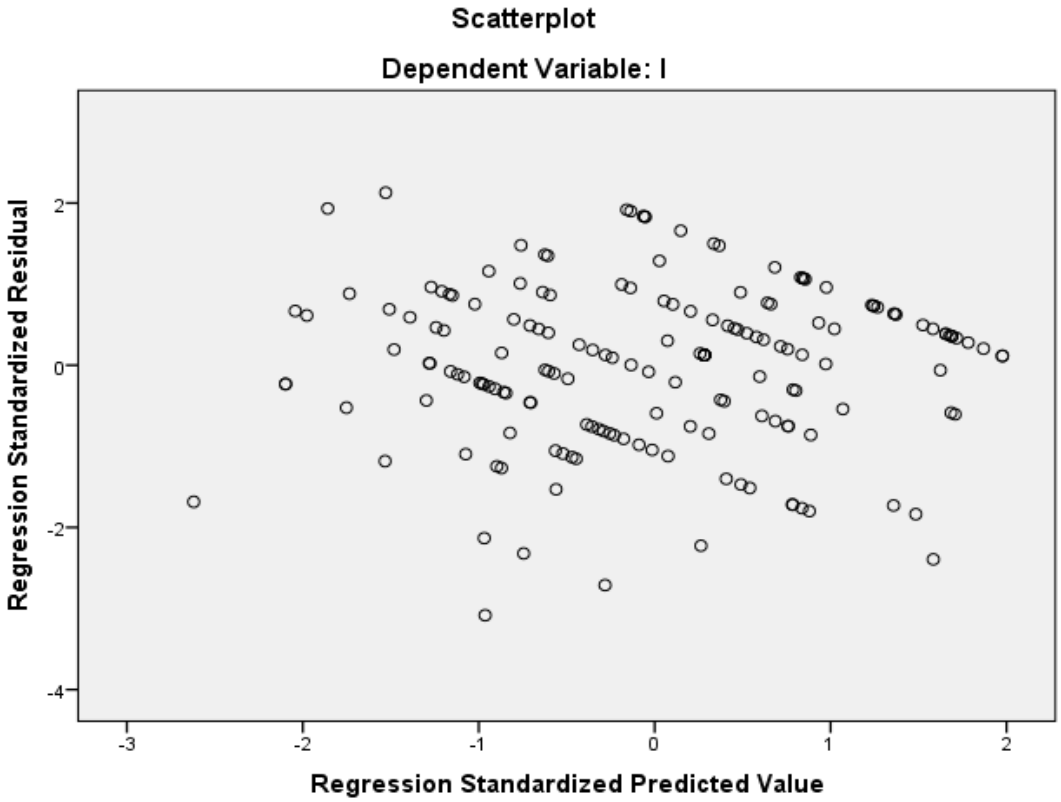
   .....

Appendix 14 Scatter plot of standardized residual and standardized predicted value



Appendix 15 Multicollinearity diagnostics

No	Construct	Tolerance	VIF
1	Perceived behavioral control to obtain HPV vaccination	0.589	1.699
2	Attitude to obtain HPV vaccination	0.675	1.481
3	Subjective norm to obtain HPV vaccination	0.752	1.329
4	Perceived of vaccine effectiveness	0.530	1.885
5	Perceived susceptibility of not obtaining HPV vaccination	0.704	1.421

Appendix 16 Reliability of instrument (N = 191)

Construct	Number of questionnaire items	Cronbach's coefficient alpha
Attitude to obtain HPV vaccination	6	0.930
Subjective norm to obtain HPV vaccination	6	0.884
Perceived behavioral control to obtain HPV vaccination	4	0.909
Perceived susceptibility of not obtaining HPV vaccination	3	0.943
Perceived of vaccine effectiveness	4	0.942
Cost of HPV vaccination	4	0.898
Knowledge of HPV and cervical cancer	9	0.555*

Note. *reliability for questionnaire with dichotomous choices conducted using Kuder-Richardson 20 (KR-20)

Appendix 17 Women characteristic associated with level of intention*

Demographic Characteristics	Low intention	High intention	p value
Age (*M*±*SD*)[a]	20.400±1.348 (*N*= 105)	20.314±1.441 (*N*=86)	0.671
Allowance from family per month in THB (*M*±*SD*)[1b]	4,488.659±2,333 (*N*= 97)	5,097.619±2,636.261 (*N*= 84)	0.027**
Religion[c]	(*N*= 105, %)	(*N*= 86, %)	0.049**
Buddhist	31.9	33.5	
Muslim	22.5	11.5	
Protestant	0.5	0	
Family income per month[1c]	(*N*= 102, %)	(*N*= 84, %)	0.250
<15,000 THB	20.4	11.8	
15,000-19,999 THB	16.1	13.4	
20,000-29,999 THB	4.8	5.9	
30,000-39,999 THB	5.9	5.4	
40,000-49,999 THB	4.3	2.2	
>50,000 THB	3.2	6.5	
Father's occupation[c]	(*N*= 102, %)	(*N*= 81, %)	0.514
Business owner	8.2	8.7	
Governmental employer	7.1	8.7	
Company employer	1.1	0.5	
Laborer	16.9	8.7	
Farmer/ Fisherman	16.4	13.1	
Other	6	4.4	
Mother's occupation[c]	(*N*= 99, %)	(*N*= 83, %)	0.855
Housewife	15.4	13.7	
Business owner	5.5	4.4	
Governmental employer	4.4	4.4	
Company employer	1.6	1.6	
Laborer	9.9	9.9	
Farmer/ Fisherman	12.6	9.9	
Other	4.9	1.6	

Demographic Characteristics	Low intention	High intention	p value
Father's highest educational level[c]	(*N*= 99, %)	(*N*= 83, %)	0.006**
Senior high school	25.3	17.6	
Vocational/ technical certificate	9.9	10.4	
Bachelor's degree	4.4	11	
Master's degree	2.7	6.6	
Other	12.1	2.5	
Mother's highest educational level[c]	(*N*= 101, %)	(*N*= 85, %)	0.404
Senior high school	27.3	25.1	
Vocational/ technical certificate	8.7	7.7	
Bachelor's degree	4.9	6.6	
Master's degree	1.6	0.5	
PhD degree	0.5	0	
Other	11.5	5.5	
Health insurance[c]	(*N*= 105, %)	(*N*= 86, %)	0.366
Have	22	20.9	
Don't have	33	24.1	
Universal health coverage[c]	(*N*= 105, %)	(*N*= 86, %)	0.749
Have	42.4	35.6	
Don't have	12.6	9.4	
University health coverage[c]	(*N*= 105, %)	(*N*= 86, %)	0.582
Have	49.2	41.4	
Don't have	5.8	3.7	
Smoking history[d]	(*N*= 105, %)	(*N*= 86, %)	0.629
Yes	1.6	0.5	
No	53.4	44.5	
Ever heard of HPV[c]	(*N*= 105, %)	(*N*= 86, %)	0.100
Yes	29.3	29.3	
No	25.7	15.7	
Ever heard of HPV vaccine[c]	(*N*= 104, %)	(*N*= 86, %)	0.029**
Yes	40	38.9	
No	14.7	6.3	

Demographic Characteristics	Low intention	High intention	p value
Family history of gynecological tumor[d]	(*N*= 105, %)	(*N*= 86, %)	0.659
Yes	1	1.6	
No	53.9	43.5	
Family history of cervical cancer[d]	(*N*= 105, %)	(*N*= 86, %)	1
Yes	1.6	1	
No	53.4	44	
Marital status[c]	(*N*= 105, %)	(*N*= 86, %)	0.150
Have partner	3.7	5.8	
Single	51.3	39.3	
Sexual orientation[c]	(*N*= 104, %)	(*N*= 86, %)	0.198
Heterosexual	48.4	40.5	
Homosexual	4.2	1.1	
Bisexual	2.1	3.2	
Other	0	0.5	
PAP experience[d]	(*N*= 105, %)	(*N*= 86, %)	1
Yes	0.5	0	
No	54.5	45	
Sexual intercourse[c]	(*N*= 105, %)	(*N*= 86, %)	0.345
Ever	4.2	5.2	
Never	50.8	39.8	

Note: M: mean; SD: Standard deviation

** The amount of participants (N) varies since the participants accidentally skipped the questions or chose not to answer*

***p<0.05*

1= Thai Bath

a= independent sample T-test

b= Mann-Whitney U

c= Chi-square test

d= Fisher's Exact Test

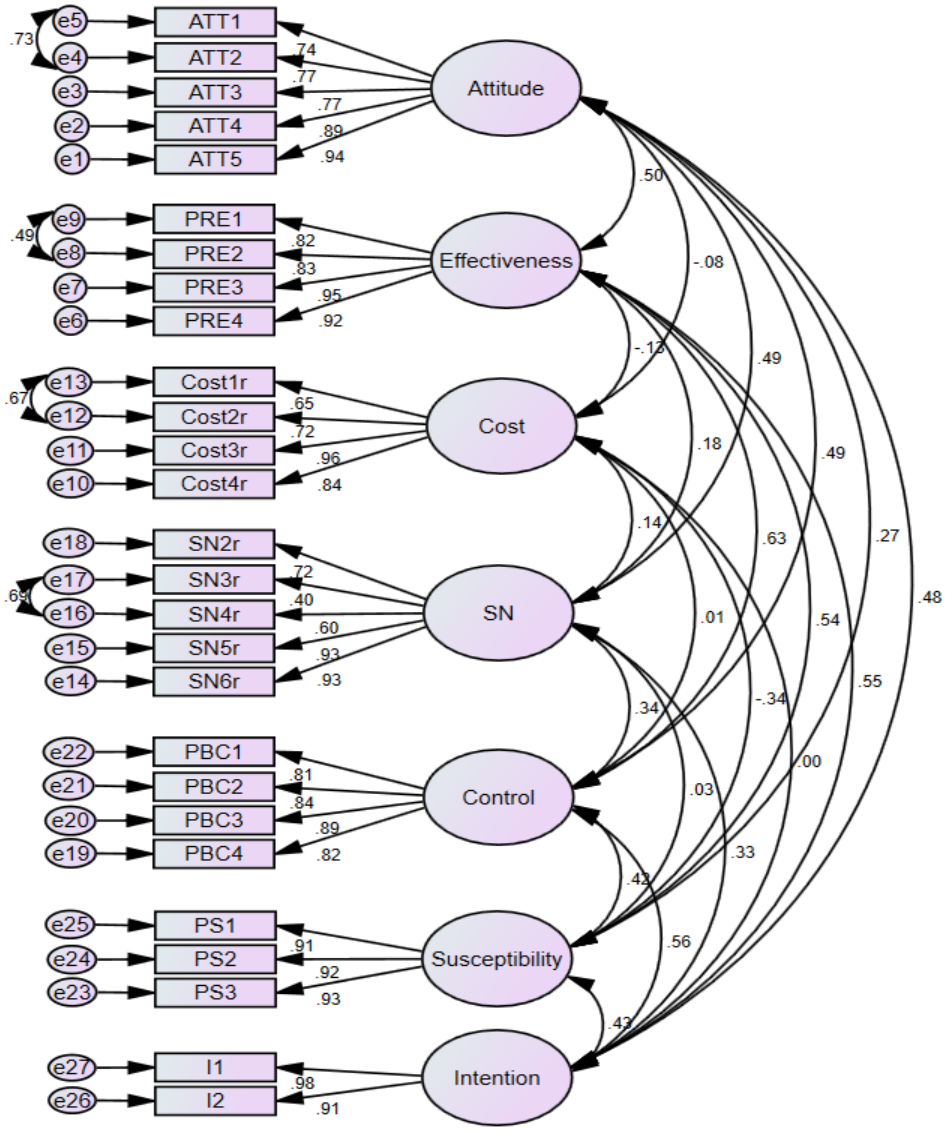
Appendix 18 Factor loadings for the 27-items on exploratory factor analysis (*N* =172)

Items	Factor loadings on each construct						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Attitude to obtain vaccination							
Obtaining vaccine would be favorable to do.	0.870						
Obtaining vaccine would be a good idea.	0.867						
Obtaining vaccine would be useful.	0.853						
Obtaining vaccine is safe.	0.738						
I have desire to get the vaccine.	0.647						
Perceived of vaccine effectiveness							
Being vaccinated leads to certainty about my health status.		0.824					
Being vaccinated would be protecting me against genital wart.		0.805					
Being vaccinated would be protecting me against cervical cancer.		0.798					
Being vaccinated would be protecting me against virus that causes cervical cancer.		0.791					
Cost of HPV vaccination							
I do not get vaccinate because I do not have money for vaccination.			0.890				
I do not get vaccinate because my university health insurance/ universal health coverage do not pay for the vaccine.			0.880				
I do not get vaccinate because the vaccine cost too much.			0.873				
I do not get vaccinate because the lack of the coverage of university health insurance.			0.799				

(continued)

Items	Factor loadings on each construct						
	1	2	3	4	5	6	7
Subjective norm to obtain HPV vaccination							
My public health nurse disapprove of my obtaining vaccination. I would…				0.860			
My physician disapprove of my obtaining vaccination. I would…				0.792			
My teacher disapprove of my obtaining vaccination. I would…				0.755			
My best friend disapprove of my obtaining vaccination. I would…				0.727			
My parents disapprove of my obtaining vaccination. I would…				0.630			
Perceived behavioral control to obtain HPV vaccination							
I could obtain the vaccine if I wanted to do so.					0.835		
If it is entirely up to me, I would be able to obtain the vaccination.					0.829		
I could overcome obstacles that prevent me from obtaining the vaccine.					0.827		
I am confident that I would be able to obtain the vaccination.					0.627		
Perceived susceptibility of not obtaining HPV vaccination							
If I don’t obtain HPV vaccine, I have chances of getting cervical cancer.						0.880	
If I don’t obtain HPV vaccine, I have chances of getting genital warts.						0.875	
If I don’t obtain HPV vaccine, I have chances of getting the virus infection.						0.862	
Intention to obtain HPV vaccine							
I plan to obtain HPV vaccination.							0.868
I expect to obtain HPV vaccination.							0.828

Appendix 19 Confirmatory factor analysis of 27 items (*N* =172)



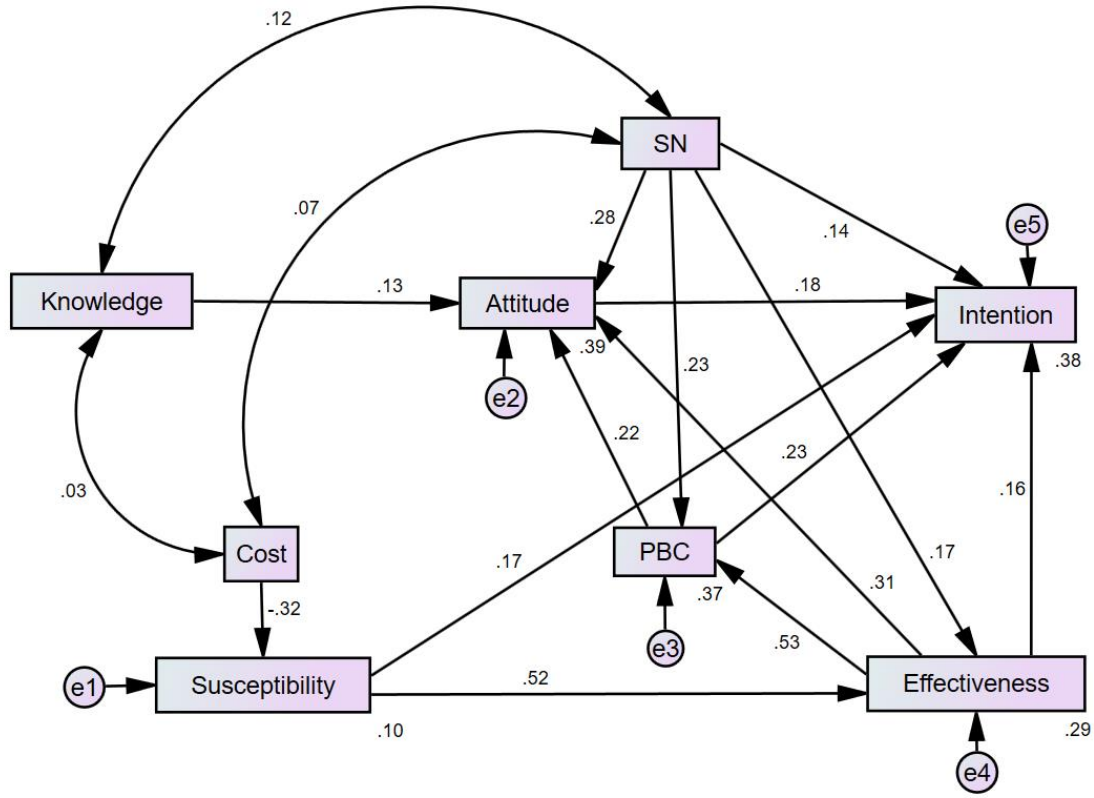
Note.
Attitude = attitude to obtain HPV vaccination
SN = subjective norm to obtain HPV vaccination
PBC = perceived behavioral control to obtain HPV vaccination
Susceptibility = perceived susceptibility of not obtaining HPV vaccination
Effectiveness = perceived of vaccine effectiveness
Cost = cost of HPV vaccination
Intention = intention to obtain HPV vaccine

The standardized regression weights shown below each path, while correlation on each constructs shown next to the double headed arrow.
RMSEA = 0.065 [90% CI 0.055, 0.074]
PCLOSE = 0.007
CMIN/ DF = 1.717
CFI = 0.948

Appendix 20 AVE , Composite Reliability and Covariance Matrix

	Composite Reliability	AVE	Covariance Matrix						
			1	**2**	**3**	**4**	**5**	**6**	**7**
1. Perceived susceptibility of not obtaining HPV vaccination	0.945	0.850	**0.922**						
2. Attitude to obtain HPV vaccination	0.913	0.681	0.268	**0.825**					
3. Perceived of vaccine effectiveness	0.934	0.781	0.54	0.505	**0.884**				
4. Cost of HPV vaccine	0.877	0.645	-0.337	-0.084	-0.135	**0.803**			
5. Subjective norm to obtain HPV vaccination	0.850	0.551	0.034	0.486	0.182	0.138	**0.742**		
6. Perceived behavioral control to obtain HPV vaccination	0.905	0.706	0.422	0.492	0.628	0.007	0.342	**0.840**	
7. Intention to obtain HPV vaccine	0.940	0.888	0.435	0.476	0.545	0.002	0.328	0.560	**0.942**

Appendix 21 Model analysis using the SEM



Note.

Attitude	= attitude to obtain HPV vaccination
SN	= subjective norm to obtain HPV vaccination
PBC	= perceived behavioral control to obtain HPV vaccination
Susceptibility	= perceived susceptibility of not obtaining HPV vaccination
Effectiveness	= perceived of vaccine effectiveness
Cost	= cost of HPV vaccination
Knowledge	= knowledge of HPV and cervical cancer
Intention	= intention to obtain HPV vaccine

SEM of eight variables with the model square multiple correlation (SMCs) or R^2 shown lower right corner on the construct of perceived susceptibility of not obtaining HPV vaccination, attitude to obtain HPV vaccine, perceived behavioral control to obtain HPV vaccine, perceived vaccine effectiveness and intention to obtain HPV vaccine. Standardized estimate on the effect of each variables was showed.

All of the exogenous variables including, subjective norm to obtain HPV vaccine, susceptibility and subjective norm were covariate.

RMSEA	= 0.049 [90% CI 0.000, 0.101]
PCLOSE	= 0.464
CMIN/ DF	= 1.405
CFI	= 0.987

Appendix 22 Mediation effect of the variables

Relationship	Direct without mediator	Direct with mediator	Indirect
SN — Attitude — Intention	0.356 (<0.001)	0.144 (0.028)	Sig., partial mediation
PBC — Attitude — Intention	0.524 (<0.001)	0.231 (0.003)	Sig., partial mediation
SN — PBC — Intention	0.356 (<0.001)	0.134 (0.038)	Sig., partial mediation
Effectiveness — Attitude — Intention	0.501 (<0.001)	0.144 (0.024)	Sig, partial mediation
Effectiveness — PBC — Intention	0.501 (<0.001)	0.159 (0.005)	Sig, partial mediation
SN — Effectiveness — Intention	0.356 (<0.001)	0.143 (0.021)	Sig, partial mediation

Note.
Sig. = significant
Attitude = attitude to obtain HPV vaccination
SN = subjective norm to obtain HPV vaccination
PBC = perceived behavioral control to obtain HPV vaccination
Susceptibility = perceived susceptibility of not obtaining HPV vaccination
Effectiveness = perceived of vaccine effectiveness
Cost = cost of HPV vaccination
Knowledge = knowledge of HPV and cervical cancer
Intention = intention to obtain HPV vaccine

VITAE

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2. Research funding from the Graduate School, Prince of Songkla University, Thailand
3. Grant of Graduate Student Discipline of Excellence, Faculty of Pharmaceutical Sciences, Prince of Songkla University